

**FINAL  
SUPPLEMENTAL ENVIRONMENTAL ASSESSMENT**

**PROPOSED JTF-6 LIGHT POLE INSTALLATION  
MISSION  
DOUGLAS, COCHISE COUNTY, ARIZONA**

**Prepared for:**

**JOINT TASK FORCE SIX**

**Prepared by:**

**U.S. ARMY CORPS OF ENGINEERS  
FORT WORTH DISTRICT  
Fort Worth, Texas**

**MARCH 1998**

## **FINDING OF NO SIGNIFICANT IMPACT**

### **JTF-6 LIGHT POLE INSTALLATION DOUGLAS, COCHISE COUNTY, ARIZONA**

I have reviewed the attached Supplemental Environmental Assessment (EA) prepared by the U.S. Army Corps of Engineers, Fort Worth District, for the Immigration and Naturalization Service (INS) and Joint Task Force Six (JTF-6) light pole installation project in Douglas, Cochise County, Arizona. Based on the results of the Supplemental EA and the environmental design measures incorporated as part of the proposed action, there will not be a significant adverse impact on the environment.

The primary purpose of the proposed project is to facilitate the U.S. Border Patrol's (USBP) mission to reduce drug activity along the border by increasing the USBP's ability to effectively patrol the Tucson border sector. The proposed action would involve the installation of light poles and lights along a 5-mile long corridor 150 feet north of the United States-Mexico border. In addition, an 8-foot wide right-of-way would be constructed (graded) to facilitate installation of the poles. This road would be maintained by the USBP to assist in the maintenance of lights and light poles.

A Programmatic Environmental Impact Statement (PEIS) was prepared in 1994 for the INS and JTF-6 proposed projects that facilitate Law Enforcement Agency (LEA) missions to reduce illegal drug activity along the southwestern border of the United States. The PEIS addresses the cumulative effects of past and future projects undertaken by JTF-6 for numerous LEAs within the four southwestern states (Texas, New Mexico, Arizona, and California). An EA was prepared in August 1997 for a JTF-6 Fence and Road Construction project along the border in Douglas, Arizona. The August 1997 EA tiered from the PEIS. This EA supplements the August 1997 EA.

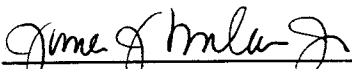
The proposed action would involve the installation of stadium lights on light poles 150 feet north of the United States-Mexico border. The 5-mile long by 8-foot wide right-of-way would be cleared in order to install the light poles and allow future access to the light poles for routine maintenance. The proposed action would extend approximately two miles from Avenue A to Airport Road on the east side of the Douglas port-of-entry station to approximately three miles west of the Douglas port-of-entry station. If the USBP does not complete required real estate acquisitions prior to the project start, the alternative to install lights at sixty feet from the border will be implemented. The USBP already has existing real estate interests for this alternative. Both of the alternatives for installation of the light poles would be more compatible with the USBP mission and would not significantly affect the resources contained within the Douglas area.


Approximately 20 military personnel from the U.S. Army 287th Engineer Detachment from Adelboro, Massachusetts, would be utilized during the proposed installation activities. These troops would stay at the National Guard Armory in Douglas, and would work from 7 a.m. to 7 p.m., six days a week during the project. The proposed action would be conducted in two phases. The first phase of installation on the eastern two miles of the project is proposed to begin about March 22, 1998, and is scheduled to continue through April 1, 1998 (dates are approximate).

This action could be extended beyond the scheduled time frame due to inclement weather. The second phase, the western three miles of the project, would occur in 1999. IBWC consultation will occur prior to implementing Phase II of this installation. Additional military units could be deployed at a later date if the installation activities are not completed. No activities are expected to occur during rainy periods, thereby reducing the potential for erosion and road degradation.

Alternatives to the proposed action were considered, including no action, increasing air patrols, installing the light poles 60 feet north of the border, reducing the intensity of the installed lights, and increasing the number of USBP agents in the area. The no action alternative would not facilitate the USBP mission to reduce illegal activities along the border. Increasing air patrols would not be as cost effective as the proposed action in controlling drug traffic. Increasing the number of USBP agents in the area was found to have excessive cost constraints, as well as an increase in expected environmental impacts. Another alternative, reducing the intensity of the installed lights along the proposed action corridor, was considered due to the possibility that the lights may interfere with nocturnal movements of Federally listed threatened or endangered species. However, informal consultation with the U.S. Fish and Wildlife Service indicated that there were no threatened or endangered species within the project area. Therefore, this alternative was not considered further.

Biological and cultural resources surveys were conducted in December 1997 to verify the existence of threatened and endangered species, wetland habitats, and historic properties; no significant issues regarding the natural environment were identified during these surveys or the preparation of the Supplemental EA. One previously recorded cultural resource site is located adjacent to the project corridor. This site was determined to be eligible for inclusion in the National Register of Historic Places and will be avoided.

  
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JAMES J. LOVELACE, JR.  
Brigadier General, U.S. Army  
Commanding

  
\_\_\_\_\_  
Date

## EXECUTIVE SUMMARY

This Supplemental Environmental Assessment (EA) was prepared in accordance with provisions of the National Environmental Policy Act (NEPA) of 1969 and Army Regulation (AR) 200-2. It supplements the August 1997 JTF-6 Fence and Road Construction EA (U.S. Army 1997). The August 1997 EA tiered from the Programmatic Environmental Impact Statement (PEIS) prepared in 1994 for the Immigration and Naturalization Service (INS) and JTF-6 and from existing EAs (U.S. Army 1991, 1993, 1996) that were completed for various construction activities in the same vicinity as the proposed action. The PEIS addresses proposed projects that facilitate Law Enforcement Agency (LEA) missions to reduce illegal drug activity along the southwestern border of the United States. The PEIS addresses the cumulative effects of past and future projects undertaken by JTF-6 for numerous LEAs within the four southwestern states (Texas, New Mexico, Arizona, and California).

The INS and the U.S. Border Patrol (USBP), Tucson Sector, has requested JTF-6 engineering support (military personnel and equipment) to install lights and light poles along a 5-mile corridor, which is located 150 ft north of the United States-Mexico border near Douglas, in Cochise County, Arizona. In addition, an 8-ft wide right-of-way would be constructed (graded) to facilitate installation of the poles. This road would be maintained by the USBP to assist in the maintenance of the light and light poles. The primary purpose of the proposed project is to facilitate the USBP mission to reduce drug activity along the border by increasing the USBP's ability to effectively patrol the Tucson border sector.

Approximately 20 military personnel from the U.S. Army 287th Engineer Detachment from Adelboro, Massachusetts, would be utilized during installation activities. These troops would stay at the National Guard Armory in Douglas and would work from 7 a.m. to 7 p.m., six days a week during the project. The proposed action would be conducted in two phases. The first phase of installation on the eastern two miles of the project is proposed to begin about March 22, 1998, and is scheduled to continue through April 1, 1998 (dates are approximate). This action could be extended beyond the scheduled time frame due to inclement weather. The second phase, the western three miles of the project, would occur in early 1999. Additional military units could be deployed at a later date if the installation activities are not completed. No activities are expected to occur during rainy periods, thereby reducing the potential for erosion and road degradation. JTF-6 has requested that the U.S. Army Corps of Engineers (USACE), Fort Worth District, assess the potential impacts of the proposed project.

Alternatives to the proposed action were considered, including no action, increasing air patrols, installing the light poles 60 ft north of the border, reducing the intensity of the installed lights, and increasing the number of USBP agents in the area. The no action alternative would not facilitate the USBP mission to reduce illegal activities along the border. Increasing air patrols would not be as cost effective as the proposed action in controlling drug traffic. Increasing the number of USBP agents in the area was found to have excessive cost constraints, as well as an increase in expected environmental impacts. Another alternative, reducing the intensity of the installed lights along the proposed action corridor, was considered due to the possibility that the lights may interfere with nocturnal movements of Federally listed threatened or endangered

species. However, informal consultation with the U.S. Fish and Wildlife Service indicated that there were no T&E species within the project area. Therefore, this alternative was not considered further.

There would be no significant adverse effects to the natural environment associated with the proposed project. The proposed action would not significantly affect air quality, noise, hazardous materials, or socioeconomics. The proposed action would not impact any species listed or proposed for listing as threatened or endangered in accordance with the Endangered Species Act. With environmental design measures specified as part of the proposed action, there would be negligible impacts to land use, surface water resources, biological resources, or historic properties.

No wetlands were located within the survey corridor. Four intermittent drainage channels cross the project corridor west of the Douglas port-of-entry. These channels are pending determination as jurisdictional waters of the United States. The proposed action would involve only a minimum of grading where drainages are crossed. Since less than 1/3 acre of fill would be placed in waters of the United States for each drainage crossing and no fill would be placed in special aquatic sites such as wetlands, it is presently assumed that Nationwide Permits 14, *Road Crossings*, would be applicable for this action.

Significant potential soil erosion and related surface water runoff impacts would not be expected during the proposed action. Procedures and methods that would be implemented to mitigate impacts to soils and surface water resources have been developed in the August 1997 National Pollutant Discharge Elimination System (NPDES) Storm Water Pollution Prevention Plan (PPP) for the proposed fence construction action (U.S. Army 1997). Recommendations outlined in the PPP would reduce surface water runoff from the project site to receiving drainages.

All potential turnaround and staging areas would be limited to previously disturbed sites and these areas would be flagged to prevent further effects from installation activities. New impacts to vegetation would involve less than five acres of clearing within the project corridor. Impacts to vegetation along the existing roadway for the environmentally preferred alternative would be minimal since no new vegetation would be disturbed. Wildlife populations would not be significantly impacted as a result of habitat loss due to the small area affected, the scattered nature of the affected area, and the presence of similar habitat adjacent to the corridor. In addition, no habitat for listed threatened or endangered plant or animal species was observed.

Impacts to wildlife resulting from operation of the high intensity lighting at night could occur, but are difficult to assess. Any changes from baseline conditions should quickly stabilize after beginning operation of the lights. Some nocturnal animals may avoid the lighted areas. Still, impacts should not be significant since the area is highly impacted by human activities.

A cultural resources inventory survey was conducted along the project corridor. A records search conducted at the Arizona State Museum prior to archeological fieldwork identified a total of three previously recorded sites within the project right-of-way. All of the previously recorded sites were revisited during the survey. As a result of the current survey, no new archeological

sites were found. The three previously recorded sites (AZ FF:10:21, AZ FF:10:22, and AZ FF:10:26) were revisited but not updated. Only two isolated manifestations were identified and recorded. Two of the three sites (AZ FF:10:21 and AZ FF:10:26) are considered to have extremely limited potential and are recommended to be ineligible for inclusion on the National Register of Historic Places (NRHP). The remaining site, AZ FF:10:22, is recommended to be eligible for inclusion on the NRHP and should be avoided.

Due to potential problems obtaining rights-of-entry, the proposed action may not be implemented. If the proposed action cannot be implemented, then the environmentally preferred alternative (install the light poles 90 ft closer to the border) or the no action alternative may be selected. Both of these alternatives for installation of the light poles would be more compatible with the USBP mission and would not significantly affect the resources contained within the Douglas area.

This supplemental EA has been prepared by the U.S. Army Corps of Engineers, Fort Worth District, to assess the impacts of the proposed action and alternatives. Based on environmental design measures, including biological and cultural resources surveys conducted in December 1997 to verify the existence of threatened and endangered species, wetland habitats, and historic properties, no significant adverse effects to the natural environment, or to the potentially eligible historic properties, are expected when implementing the proposed action.

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## **1.0 INTRODUCTION**

### **1.1 Background**

The United States is experiencing high levels of drug use and increasing amounts of drug-related crime. Negative impacts of widespread drug use on society continue to affect the work force, educational system, and general law and order. Rising rates of violent crime, serious damage to the Nation's health and economy, and strains on vital relationships with international allies led the U.S. Congress to develop the National Drug Control Strategy (NDCS). The NDCS included Department of Defense (DOD) involvement, and in 1989, the Secretary of Defense defined a significant role in the counterdrug effort for Joint Task Force Six (JTF-6). The JTF-6 is a Joint Service DOD agency assigned to assist law enforcement agencies that have drug interdiction responsibilities in the continental United States. Assistance includes operational and training efforts, design and construction efforts, or logistical actions, provided (1) there is a link to drug interdiction and (2) the assistance would provide all or part of the mission essential training elements of the military unit involved in the assistance.

A Programmatic Environmental Impact Statement (PEIS) was prepared for Immigration and Naturalization Service (INS) and JTF-6 proposed projects that facilitate Law Enforcement Agency (LEA) missions to reduce or eliminate illegal drug activity along the southwestern border of the United States (INS/JTF-6 1994). The PEIS addresses the cumulative effects of past and future projects undertaken by JTF-6 for numerous law enforcement agencies within the following four southwestern states: Texas, New Mexico, Arizona, and California. The PEIS describes the general types of projects expected and addresses the types of impacts that would be expected to result from the continuation of the JTF-6 program.

This Supplemental Environmental Assessment (EA) addresses the potential impacts associated with the proposed installation of lights and light poles to be completed by JTF-6 along the United States-Mexico border for the U.S. Border Patrol (USBP) near Douglas, Arizona. This document supplements the JTF-6 1997 Fence and Road Construction EA. The August 1997 EA tiered from the existing EAs completed for previous road maintenance and fence construction activities (U.S. Army 1991, 1993, 1996) in the general vicinity, and a PEIS completed for JTF-6 activities along the United States-Mexico border (INS/JTF-6 1994). The lead agency for this project is JTF-6.

This Supplemental EA was prepared by Geo-Marine, Inc. (GMI), for the U.S. Army Corps of Engineers (USACE), Fort Worth District, and was conducted with and in partial fulfillment of the JTF-6 obligations under the National Historic Preservation Act (NHPA) of 1966, as amended (Public Law [P.L.] 96-515); Clean Water Act (CWA) of 1977, (P.L. 92-500); Archeological and Historic Preservation Act (AHPA) of 1974, as amended (P.L. 93-291); National Environmental Policy Act (NEPA) of 1969 (P.L. 90-190); Executive Order 11593 (*Protection and Enhancement of the Cultural Environment*); Army Regulation (AR) 200-2 (Environmental Effects of Army Actions); and Endangered Species Act (ESA) of 1973, as amended (P.L. 100-578).

## **1.2 Project Location**

The proposed action would occur in the USBP Tucson Sector in Cochise County, Arizona. The 8-foot (ft) wide right-of-way would be 150 ft north of the United States-Mexico border from Avenue A in Douglas east to Airport Road, and then west approximately three miles (mi) from the Douglas/Agua Prieta port-of-entry (POE) station (Figure 1-1).

## **1.3 Purpose and Need**

The purpose of the proposed action is to facilitate the USBP mission to reduce illegal drug activity along the United States-Mexico border. From October 1996 to September 1997, 26,113 pounds (lbs) of marijuana valued at \$20,891,267.00 were seized in the Douglas area. Over 114,500 apprehensions have occurred in the area.

JTF-6 installed a fence along the border in January 1998 (U.S. Army 1997), and this proposed action would supplement the fence installation action. Lighting would allow a clear field of view for USBP agent inspection of the fence at night. This would increase the effectiveness of USBP agents in detecting initial movement north across the border, significantly reducing the amount of illegal smuggling/narcotic traffic reaching Douglas, Arizona, and other areas north of Douglas. The light poles along the 8-ft wide right-of-way would be installed by personnel from the U.S. Army 287th Engineer Detachment from Addelboro, Massachusetts. This project is needed to develop both USBP and Army skills and experience.

## **1.4 Applicable Environmental Statutes and Regulations**

Table 1-1 lists pertinent environmental regulations that guided the development of this Supplemental EA.

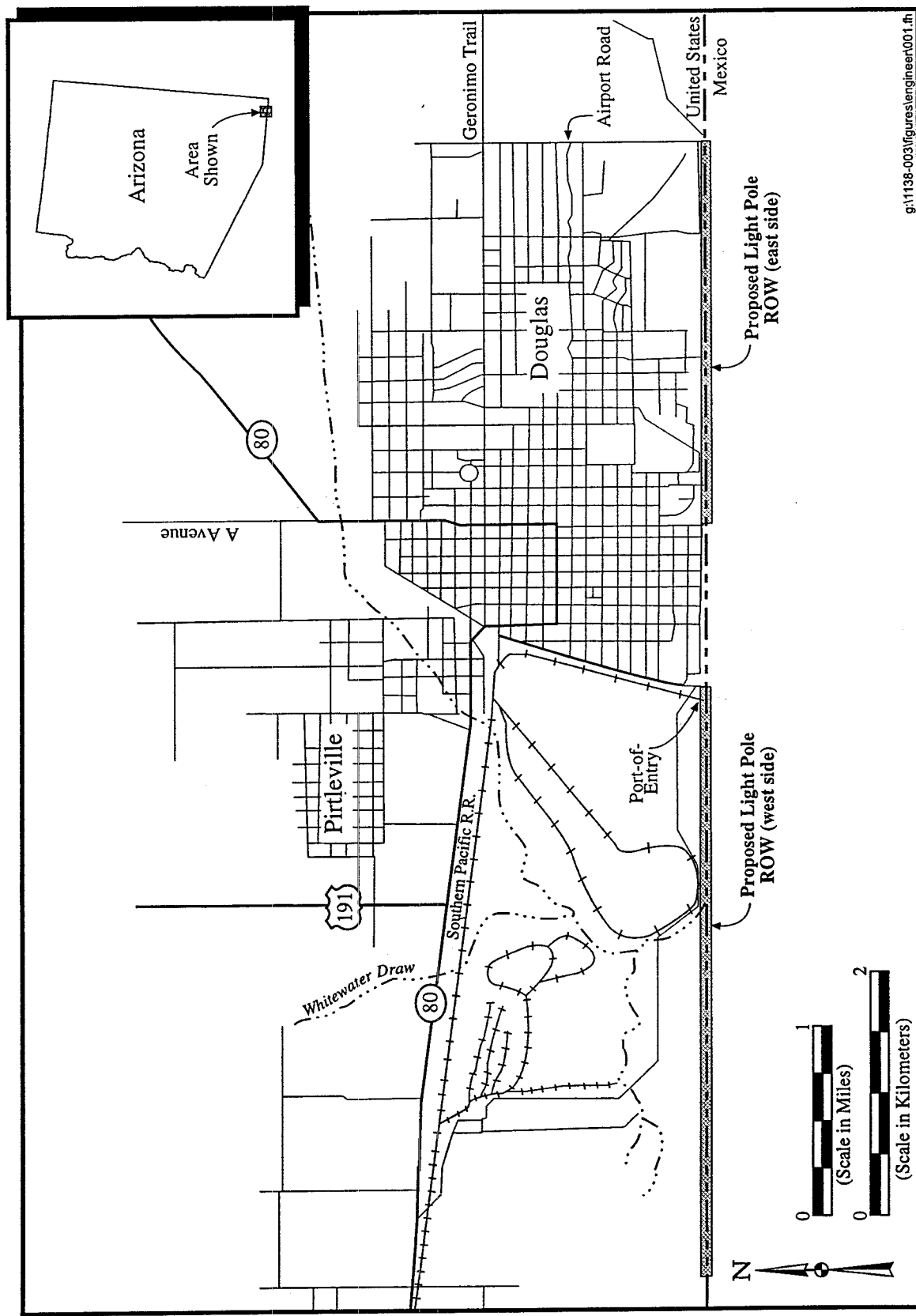


Table 1-1

Applicable Environmental Statutes and Regulations

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Environmental Regulation

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Federal Statutes

Archeological and Historic Preservation Act  
Clean Air Act, as amended  
Clean Water Act, as amended  
Endangered Species Act, as amended  
Migratory Bird Treaty Act  
National Historic Preservation Act, as amended  
National Environmental Policy Act, as amended  
Native American Graves Protection and Repatriation Act

Executive Orders, Memorandums, or Army Regulations

Flood Plain Management (Executive Order 11988)  
Protection of Wetlands (Executive Order 11990)  
Federal Actions to Address Environmental Justice in Minority Populations and  
Low-Income Populations (Executive Order 12898)  
Protection and Enhancement of the Cultural Environment (Executive Order 11593)  
Army Regulation 200-1 (Environmental Protection and Enhancement)  
Army Regulation 200-2 (Environmental Effects of Army Actions)  
Army Regulation 420-74 (Natural Resources-Land, Forest, and Wildlife Management)  
Army Regulation 420-40 (Historic Preservation)--under revision (Army Regulation  
200-4, Cultural Resources Management)

State Statutes, Regulations, or Applicable Permits

Arizona Antiquities Act  
Arizona Native Plant Law  
Comprehensive Air Quality Act  
Arizona Environmental Quality Act  
Arizona Revised Statutes Title 17 (Native Wildlife)

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## **2.0 DESCRIPTION OF PROPOSED ACTION AND ALTERNATIVES**

This section of the Supplemental EA discusses the proposed action and the alternatives that were considered during preparation of this document. Some alternatives were eliminated from further consideration due to technical and economic factors. This Supplemental EA addresses the proposed installation of lights and light poles along a cleared 8-ft wide right-of-way (which would be used for future maintenance access) approximately 150 ft north of the United States/Mexico border. The proposed action would increase the effectiveness of the USBP in the current battle against drug trafficking and smuggling activities. The proposed action would assist the USBP in maintaining increased visibility within a known high-traffic area in a cost-effective manner.

### **2.1 Proposed Action**

The proposed action would involve the installation of light poles and lights along a corridor 150 ft north of the United States-Mexico border. Approximately two miles of light poles, spaced at 400-ft intervals, would be installed east of the POE, beginning at Avenue A and ending at Airport Road in Douglas, Arizona. Approximately three miles of light poles would be installed to the west of the Douglas POE. In addition, an 8-ft wide right-of-way would be constructed (graded) to facilitate installation of the poles. This road would be maintained by the USBP to assist in the maintenance of the light poles and lights. JTF-6 would coordinate with the International Boundary and Water Commission (IBWC) regarding installation of the lights prior to the initiation of the proposed action.

If the proposed action is implemented on the basis of this Supplemental EA and a finding of no significant impact, the first phase of installation on the eastern portion of the project would begin in March 1998, and would take approximately two weeks to complete. The second phase would occur in early 1999. No activities are expected to occur during rainy periods, thereby reducing the potential for erosion and road degradation. Military personnel from the U.S. Army 287th Engineer Detachment from Addelboro, Massachusetts, would complete the proposed action. The unit would stay at the National Guard Armory in Douglas.

Approximately 20 military personnel would be required to complete the proposed action. Personnel would work from 7 a.m. to 7 p.m., six days a week. If the proposed action is not completed within the two-week time frame, another military unit would be tasked to follow-up and complete the proposed action within two years.

All personnel would be informed about the limits of the construction area and the actions that are permitted within that area through an environmental briefing of the unit completing the proposed action. Additionally, construction limits would be flagged to ensure personnel completing the proposed action stay within the construction area boundaries.

The proposed action would provide more security and, thus, reliability for the lights than the environmentally preferred alternative (discussed below). This is because the lights would be located 90 ft farther from the border and would be less prone to damage by objects thrown from

across the border. Consequently, this alternative was selected as the proposed action even though it will result in impacts greater than can be expected with the environmentally preferred alternative. However, due to potential problems obtaining rights-of-entry in the area, the proposed action may not be implemented. If this situation does arise, then the environmentally preferred alternative or the no action alternative could be selected.

## **2.2 No Action**

The no action alternative is considered a viable alternative in all NEPA documents. Although no impacts would occur if this alternative is implemented, the no action alternative would not enhance the USBP's ability to halt drug trafficking activity, and would continue to cause a deterioration in the agency's ability to fulfill its mission.

## **2.3 Environmentally Preferred Alternative**

The environmentally preferred alternative to the proposed action would be to install the light poles along an existing road located 60 ft (20 meters [m]) north of the United States-Mexico border. This alternative is similar to the proposed action, except the light poles would be located approximately 90 ft south of the proposed action right-of-way centerline. This alternative would involve identical installation as discussed in Section 2.1 except that no new road construction would be required. Consequently, less vegetation would have to be cleared. However, because the lights would be within 60 ft of the border, they are more prone to damage by objects thrown from across the border.

## **2.4 Alternatives Considered but Eliminated from Detailed Analysis**

### **2.4.1 Increase Air Patrols**

Air patrols could be used to spot narcotics traffickers instead of the proposed installation activities. However, smugglers cannot be tracked efficiently since aircraft are restricted to altitudes above 500 ft and nighttime conditions make it almost impossible to locate and follow smugglers. Many smugglers travel under the cover of darkness when aircraft would have great difficulty in spotting movement on the ground. Helicopter operating costs are high and they are not as cost effective as the proposed action. Therefore, this alternative is not considered to be a viable alternative to the proposed action and will not be evaluated further in this document.

### **2.4.2 Increase Number of USBP Agents**

Increasing the number of USBP agents monitoring the border near Douglas would reduce the amount of illegal drugs smuggled across the border by creating a larger, more available force for detecting and apprehending persons. Additionally, more agents along the border would be more noticeable, and may decrease the apparent accessibility to the United States by illegal drug smugglers. However, the associated increase in traffic along the border due to more USBP agents patrolling the area would increase impacts to biological resources (i.e., increased emissions, vehicle traffic, etc.). Also, there would be a required increase in expenditures to

maintain a force expansion. These reasons eliminated this alternative from further detailed analysis.

#### 2.4.3 Reduced Intensity of Lighting

Another alternative, reducing the intensity of the lights installed along the proposed action corridor, was considered due to the possibility that the lights may interfere with nocturnal movements of Federally listed threatened or endangered (T&E) species. However, informal consultation with the U.S. Fish and Wildlife Service (USFWS) indicated that there were no T&E species within the project area (Palmer 1998). Therefore, this alternative was not considered further.



### **3.0 AFFECTED ENVIRONMENT**

This chapter describes the existing conditions of environmental resources with potential to be impacted by the proposed action and the environmentally preferred alternative. Resources such as groundwater quality, noise, and hazardous materials, which are not expected to be impacted significantly by the proposed action or the environmentally preferred alternative, are not analyzed in this EA, as allowed by NEPA.

#### **3.1 Proposed Action**

##### **3.1.1 Land Use**

Much of the project area is within the Douglas city limits; however, the majority of the area immediately adjacent to the proposed right-of-way is considered vacant. The condition of this area is deteriorated due to illegal smuggling and foot traffic. Miscellaneous solid waste (i.e., paper, plastic, and similar urban trash) from the surrounding urban area, concrete/spoil piled along the existing fence, and industrial use of the area contribute to the deteriorated condition of the project area.

Approximately 984 linear feet of the border east of the POE are occupied by the City of Douglas wastewater treatment plant. The project area is accessed primarily by USBP agents, City of Douglas personnel, and local ranch owners (U.S. Army 1991). General civic activity and wildlife habitat are additional, minor uses of the project area.

In compliance with the Farmland Protection Policy Act, Form AD 1006 has been completed for this project. Part VI of the form totaled less than 60 points; therefore, the form was not submitted to the Natural Resource Conservation Service for a prime farmlands evaluation. All agricultural lands in the project vicinity fall within the VI to VIII land use capability classification due to the limited precipitation in the area and are, therefore, classified and used for range, wildlife, aesthetic, and recreational purposes.

##### **3.1.2 Water Resources**

###### **3.1.2.1 Surface Drainages**

The project area receives surface runoff and groundwater from precipitation and snow melt in the local mountains. Surface water resources associated with the proposed action include Whitewater Draw and three unnamed intermittent drainage channels. The U.S. Army (1993) reported Whitewater Draw as having a slight flow of water approximately 6 inches (in) deep during two separate visits. Water was present in Whitewater Draw during a recent site visit (U.S. Army 1997); however, water may be impounding where Whitewater Draw crosses the border due to flow restrictions in Mexico. Water quality in the area is generally good, with almost all water coming from wells; however, specific instances of water quality violations within the project area have occurred (U.S. Army 1993).

### 3.1.2.2 Jurisdictional Waters of the United States

Section 404 of the Clean Water Act (CWA) of 1977 (P.L. 95-217) authorizes the Secretary of the Army, acting through the Chief of Engineers, to issue permits for the discharge of dredged or fill material into waters of the United States, including wetlands. Waters of the United States (Section 328.3[2] of the CWA) are those waters used in interstate or foreign commerce, subject to ebb and flow of tide, and all interstate waters including interstate wetlands. Waters of the United States are further defined as all other waters such as intrastate lakes, rivers, streams, mudflats, sandflats, wetlands, sloughs, prairie potholes, wet meadows, playa lakes, natural ponds, or impoundments of waters, tributaries of waters, and territorial seas. Wetlands are those areas inundated or saturated by surface or groundwater at a frequency and duration sufficient to support, and under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions (USACE 1987). Jurisdictional boundaries for these water resources are defined in the field as the ordinary high water mark (OHWM) which is that line on the shore established by the fluctuations of water and indicated by physical characteristics such as clear, natural lines impressed on the bank, shelving, changes in the character of soil, destruction of terrestrial vegetation, the presence of litter and debris, or other appropriate means that consider the characteristics of the surrounding areas.

On 14-15 December 1997, two biologists surveyed the proposed project corridor for areas that met the jurisdictional requirements set forth by the USACE under authority of Section 404 of the CWA. No wetlands were located within the 100-ft survey corridor. Four intermittent drainage channels (including Whitewater Draw) were located in the corridor west of the POE. Each channel was oriented nearly perpendicular to the corridor, each crossing the corridor only once. The width of the OHWM for each channel was, from east to west, approximately 4 ft, 20 ft, 15 ft, and 2 ft.

### 3.1.3 Air Quality

Overall, air quality in the immediate vicinity is very good (Guyton 1997; U.S. Army 1991, 1993, 1996a, 1997), with the exception of particulate matter in the form of fugitive dust particles. The project area is located in a semi-arid region and is predominantly open space and grazing land. Air quality is primarily determined by meteorological conditions, and the composition and concentration of pollutants in the air. Prevailing meteorological conditions in the area do not allow the concentration of pollutant emissions. Daily winds tend to disperse general air emissions. Typical pollutant sources, such as heavy industry and fossil fuel power plants, are absent from the area. The primary pollutant agent is fugitive dust particles generated by wood burning, shrub and grass fires, unpaved roads, and wind erosion. This is reflected in the fact that the area is in a nonattainment area for particulate matter.

Applicable state and national ambient air quality standards (NAAQS), the current attainment status of the area, and any current emissions at or near the site are discussed in the following paragraphs.

### 3.1.3.1 Federal, State, Rural, and Wilderness Standards

The Clean Air Act (CAA), Title 40 Code of Federal Regulations (CFR) Parts 50 and 51, dictates that the NAAQS, established by the Environmental Protection Agency (EPA), must be maintained nationwide. The NAAQS have been established to protect public health and welfare, with an adequate margin of safety. The NAAQS include standards for six criteria pollutants: ozone (O<sub>3</sub>), nitrogen oxide (NO<sub>x</sub>), carbon monoxide (CO), respirable particulates (PM<sub>10</sub>, particulate matter less than 10 microns in diameter), sulfur oxide (SO<sub>x</sub>), and lead (Pb). Arizona ambient air quality standards (AAQS) are identical to the NAAQS for criteria air pollutants (Table 3-1). The standards are presented in terms of concentrations averaged over various periods of time. These include short-term (one-hour, eight-hour, or 24-hour) for pollutants with acute health effects and long-term (annual) standards for pollutants with chronic health effects.

The CAA delegates authority to state and local agencies to enforce the NAAQS and to establish air quality standards and regulations of their own. The adopted state standards must be at least as stringent as the Federal requirements. Although mobile sources, such as aircraft, are exempt from air pollution permitting requirements, the areas in which they operate must comply with the NAAQS and aircraft emissions have the potential to affect compliance.

The CAA, Section 168(a), states that it is a national goal to prevent any further impairment of visibility within Federally mandated Prevention of Significant Deterioration (PSD) Class I areas, such as national parks and wilderness areas, from man-made sources of air pollution. Visibility impairment is defined as (1) reduction in regional visual range and (2) atmospheric discoloration or plume blight (as from aircraft contrails). Criteria for determining significant impacts on visibility within Class I areas usually pertain to stationary emission sources. Mobile sources are exempt from permit review by regulatory agencies.

The CAA amendments of 1990 constitute a renewed commitment by the United States government to establish a practicable framework to achieve attainment and maintenance of health-protective NAAQS. Title 1 sets provisions for the attainment and maintenance of the NAAQS. The EPA has recently reclassified various areas according to their attainment status for CO, NO<sub>x</sub>, PM<sub>10</sub>, and O<sub>3</sub>.

Under the General Conformity Rule of the CAA, Section 176(c), activities must not cause or contribute to any new violation, increase the frequency or severity of any existing violation, or delay timely attainment of any standard, interim emission reductions, or milestones in conformity to a state implementation plan's purpose of eliminating or reducing the severity and number of NAAQS violations in achieving expeditious attainment of NAAQS, or impair visibility within any Class I area.

### 3.1.3.2 Current Attainment Status

The Arizona Department of Environmental Quality (ADEQ), Monitoring Section, is responsible for monitoring air quality in the project area and currently has one PM<sub>10</sub> monitoring station and two MET (meteorological) stations located in Douglas. The closest air quality station that

monitors the remaining priority pollutants is located in Tucson, Arizona. Cochise County is currently in attainment for all criteria air pollutants with the exception of PM<sub>10</sub> in Douglas (Guyton 1997). However, Douglas is located on the United States-Mexico border, and the ADEQ has determined that influences from Mexico are responsible for the nonattainment status of the area (Gibbs 1997; Guyton 1997). Therefore, Douglas is classified in the 1993 Final State Implementation Plan (SIP) as a border area exception for PM<sub>10</sub>.

Table 3-1  
National and State Ambient Air Quality Standards

| Air Pollutant                     | Averaging Time   | Federal NAAQS/Arizona AAQS |                       |
|-----------------------------------|------------------|----------------------------|-----------------------|
|                                   |                  | Primary (>)                | Secondary (>)         |
| Carbon Monoxide (CO)              | 8-hour           | 9 ppm                      | 9 ppm                 |
|                                   | 1-hour           | 35 ppm                     | 35 ppm                |
| Nitrogen Oxide (NO <sub>x</sub> ) | AAM              | 0.053 ppm                  | 0.053 ppm             |
| Sulfur Oxide (SO <sub>x</sub> )   | AAM              | 0.03 ppm                   | ---                   |
|                                   | 24 hour          | 0.14 ppm                   | ---                   |
|                                   | 3-hour           | 0.5 ppm                    | 0.5 ppm               |
| Particulates PM <sub>10</sub>     | AAM              | 50 µg/m <sup>3</sup>       | 50 µg/m <sup>3</sup>  |
|                                   | 24-hour          | 150µg/m <sup>3</sup>       | 150 µg/m <sup>3</sup> |
| Ozone (O <sub>3</sub> )           | 1-hour           | 0.12 ppm                   | 0.12 ppm              |
| Lead (Pb)                         | Calendar Quarter | 1.5 µg/m <sup>3</sup>      | 1.5 µg/m <sup>3</sup> |

Notes: AAM = Annual Arithmetic Mean      ppm = parts per million  
 AGM = Annual Geometric Mean      µg/m<sup>3</sup> = micrograms per cubic meter  
 > = greater than

Source: 40 CFR Part 50; ADEQ 1997

#### 3.1.4 Biological Resources

A site visit was conducted on 14-15 December 1997, by two biologists and a USBP representative to briefly inventory and evaluate the potential effects of the proposed action on biological resources. This site visit was conducted to augment previous biological surveys (U.S. Army 1996a, 1997) and characterize the biological resources within the specific project area.

#### 3.1.4.1 Vegetation

Vegetation observed in the proposed project corridor was desert thorn scrub with a canopy cover ranging from 40 to 75 percent, excluding roads and cleared lots. The eastern half of the proposed project corridor contained highly disturbed areas, with up to 40 percent of the corridor containing dirt roads, commercial/industrial areas, and cleared lots. The western half of the proposed project corridor was slightly less disturbed, with only 20 percent of the corridor containing commercial/industrial areas and cleared lots. The dominant shrubs were white-thorn acacia (*Acacia constricta*) and mesquite (*Prosopis glandulosa*). Additional shrubs included snakeweed (*Gutierrezia* spp.), tarbush (*Flourensia cernua*), desert broom (*Baccharis sarothroides*), and creosote bush (*Larrea tridentata*). Scattered grasses included Johnsongrass (*Sorghum halepense*), alkali sacaton (*Sporobolus airoides*), tobosagrass (*Hilaria mutica*), sideoats grama (*Bouteloua curtipendula*), and burrograss (*Scleropogon brevifolius*).

#### 3.1.4.2 Fish and Wildlife

Reptiles and amphibians possibly occurring near the project corridor include Couch's spadefoot toad (*Scaphiopus couchii*), western green toad (*Bufo debilis insidiosus*), desert box turtle (*Terrapene ornata luteola*), southwestern earless lizard (*Cophosaurus texana scitulus*), Mexican hognose snake (*Heterodon nasicus bennerlyi*), western hooknose snake (*Gyalopion canum*), western diamondback rattlesnake (*Crotalus atrox*), and gopher snake (*Pituophis melanoleucus*). Mammals characteristic of the region include coyote (*Canis latrans*), javelina (*Tayassu tajacu*), mule deer (*Odocoileus hemionus*), Coue's whitetail deer (*Odocoileus virginianus couesi*), jackrabbit (*Lepus californicus*), cottontail (*Sylvilagus audubonii*), and wood rats (*Neotoma mexicana* and *N. albigula*). Bird species which may occur in the project corridor include northern harrier (*Circus cyaneus*), red-tailed hawk (*Buteo jamaicensis*), Gambel's quail (*Callipepla gambelii*), roadrunner (*Geococcyx californianus*), mourning dove (*Zenaida macroura*), white-crowned sparrow (*Zonotrichia leucophrys*), kestrel (*Falco sparverius*), turkey vulture (*Cathartes auro*), Cassin's kingbird (*Tyrannus vociferans*), western kingbird (*T. verticalis*), and blue grosbeak (*Passerina caerulea*). No wildlife species were observed in the project corridor during the biological survey.

#### 3.1.4.3 Threatened and Endangered Species

The ESA of 1973 (P.L. 93-205) and the amendments of 1988 (P.L. 100-578) were enacted to provide a program of preservation for endangered and threatened species and to provide protection for ecosystems upon which these species depend for their survival. The ESA requires all Federal agencies to implement protection programs for designated species and to use their authorities to further the purposes of the Act. Responsibility for the identification of an endangered or threatened species and for the development of recovery plans lies with the Secretary of Interior and Secretary of Commerce. The USFWS is responsible for implementing the ESA within the continental United States.

An endangered species is a species which is in danger of extinction throughout all or a significant portion of its range. A threatened species is a species likely to become endangered within the

foreseeable future throughout all or a significant portion of its range. Proposed species are those which have been formally submitted to Congress for official listing as endangered or threatened.

In addition, the USFWS has identified species which are candidates for possible addition to the list of Endangered and Threatened Wildlife and Plants (50 CFR Parts 17.11 and 17.12) under the ESA of 1973, as amended. Candidate Category 1 species are now listed as "candidates."

Candidate species are defined as those species for which the USFWS has on file sufficient information on their biological status and threat(s) to propose them as endangered or threatened, but for which issuance of the proposed rule is precluded by work on higher priority species. The USFWS maintains a candidate list to: (1) provide advance knowledge of potential listings that could affect land planning decisions, (2) solicit input to identify candidates not requiring protection or additional species that may require protection under the ESA, and (3) solicit information needed to prioritize the order in which species will be proposed for listing.

Candidate Category 2 species are listed as "Species of Concern" and include those species for which further biological research and field study are needed to resolve their conservation status. Candidate species and species of concern have no legal protection under the ESA (USFWS 1996).

A list of endangered, threatened, or candidate species which may occur in the proposed project corridor was requested from the USFWS (Appendix A). The USFWS response included 16 potentially occurring threatened or endangered species: Cochise pincushion cactus (*Coryphantha robbinsorum*), New Mexican ridge-nosed rattlesnake (*Crotalus willardi obscurus*), jaguarundi (*Felis yagouaroundi tolecta*), lesser long-nosed bat (*Leptonycteris curasdae yerbabuenae*), Mexican gray wolf (*Canis lupus baileyi*), ocelot (*Felis pardaus*), beautiful shiner (*Cyprinella formosa*), Yaqui catfish (*Ictalurus pricei*), Yaqui chub (*Gila purpurea*), Yaqui topminnow (*Poeciliopsis occidentalis sonoriensis*), American peregrine falcon (*Falco peregrinus anatum*), California condor (*Gymnops californianus*), Mexican spotted owl (*Strix occidentalis lucida*), northern aplomado falcon (*Falco femoralis septentrionalis*), southwestern willow flycatcher (*Empidonax traillii extimus*), and whooping crane (*Grus americana*). The USFWS response included an additional four species proposed for listing: Canelo Hills ladies' tresses (*Spiranthes delitescens*), Huachuca water umbel (*Lilaeopsis schaffneriana* variety [var.] *recurva*), jaguar (*Panthera onca*), and Sonora tiger salamander (*Ambystoma tigrinum stebbinsi*). A description of habitat requirements and the reasons for decline for listed species and species proposed for listing are included in Table 3-2.

A survey of the proposed project corridor for candidate, threatened, and endangered species was conducted from 14-15 December 1997. Surveys were conducted by two biologists, each walking a transect through the center of a 50-ft corridor on each side of the proposed project corridor centerline (i.e., 150 ft north of the border fence).

Table 3-2  
Habitat Requirements and Reasons for Decline of Federally Listed Species and  
Species Proposed for Listing

| Species (Status <sup>*</sup> )          | Habitat Requirements                                | Reasons for Decline                  | Presence of Suitable Habitat <sup>**</sup> |
|---|---|--------------------------------------|--|
| Cochise pincushion cactus (T)           | limestone outcrops in semidesert grassland          | limited distribution, overcollection | 0  |
| Blumer's dock (PE)                      | 8,000 to 8,500 ft                                   | habitat loss                         | 0  |
| Catalina Beardtongue (PE)               | 6,000 to 7,500 ft                                   | habitat loss                         | 0  |
| Lemmon fleabane (PE)                    | cliffs at 1,500 to 6,000 ft                         | unknown                              | 0  |
| Canelo Hills ladies' tresses (PE)       | saturated soils of cienegas with grasses and sedges | habitat loss                         | 0  |
| Huachuca water umbel (PE)               | cienegas and streams with low density vegetation    | habitat loss                         | 0  |
| Beautiful shiner (T) <sup>1</sup>       | small to medium-sized streams                       | habitat loss                         | 0  |
| Yaqui catfish (T) <sup>1</sup>          | moderate to large streams                           | habitat loss                         | 0  |
| Yaqui chub (E) <sup>1</sup>             | deep pools of small streams                         | habitat loss                         | 0  |
| Yaqui topminnow (E)                     | small to moderate-sized streams                     | habitat loss                         | 0  |
| Sonora tiger salamander (PE)            | stock tanks and impounded cienegas                  | hybridization, predation             | 0  |
| New Mexican ridge-nosed rattlesnake (T) | canyon bottoms in pine-oak and pine-fir communities | habitat loss, illegal collection     | 0  |
| American peregrine falcon (E)           | cliffs and steep terrain                            | habitat loss, pesticides             | 0  |
| Bald eagle (E)                          | lakes, rivers, reservoirs, and riparian habitat     | pesticides, shooting                 | 0  |
| California condor (E)                   | high desert canyonlands                             | habitat loss, pesticides             | 0  |
| Mexican spotted owl (T)                 | canyons and dense forests                           | habitat loss                         | 0  |
| Northern aplomado falcon (E)            | grassland and savanna                               | habitat loss, pesticides             | 0  |
| Southwestern willow flycatcher (E)      | riparian cottonwood/willow and tamarisk communities | habitat loss                         | 0  |
| Whooping crane (E)                      | marshes, prairies, and river bottoms                | habitat loss, human disturbance      | 0  |
| Lesser long-nosed bat (E)               | desert scrub  | habitat loss, human disturbance      | 0  |
| Mexican gray wolf (E)                   | chaparral woodland and forested areas               | eradication programs                 | 0  |
| Ocelot (E)                              | humid tropical and sub-tropical forests             | unknown                              | 0  |
| Jaguar (PE)                             | Sonoran desert to conifer forests                   | eradication programs                 | 0  |
| Jaguarundi (E)                          | semi-arid thorny forests, deciduous forests         | habitat loss                         | 0  |

\*T = Threatened  
E = Endangered  
PE = Proposed Endangered

\*\* 0 = None in Proposed Project Corridor

<sup>1</sup>Critical Habitat

Source: USFWS 1997

No Federally listed threatened, endangered, or candidate plant or animal species were observed within the proposed project corridor. By comparing the habitat and range descriptions in the literature with the actual conditions observed during the field survey, it was determined that these animals probably do not occur within the corridor. Additionally, these species were not observed during previous surveys adjacent to the corridor (U.S. Army 1991, 1993, 1996a, 1997).

### 3.1.5 Cultural Resources

Between December 15 and December 17, 1997, a cultural resources inventory survey was conducted along the proposed project corridor. The cultural resources investigation was undertaken in order to locate any cultural properties that would potentially be impacted by the proposed action. Three previously recorded archeological sites were relocated, and two isolated features were identified as a result of this survey. No new archeological sites were identified.

A detailed review of previous investigations in the Douglas area is presented along with the area's cultural history in Appendix B.

#### 3.1.5.1 Previous Cultural Resources Investigations

##### 3.1.5.1.1 Douglas, East Segment

The Douglas, East Segment originates at the end of Dolores Street and proceeds approximately 1.8 mi east to the Douglas Municipal Airport road. Originally, this segment was scheduled to start at the end of Avenue A and proceed east to the airport road. However, its route was shortened to exclude approximately 0.2 mi of the international land boundary because this area is not to be used as part of the proposed action. This east segment can be characterized as "urbanized," highly disturbed areas which include housing, cemeteries, streets, and other land development locations. Modern trash is dispersed throughout the segment. In 1991, GMI conducted an intensive cultural resources inventory survey along this border segment (Martyne et al. 1994) and documented two historic sites (AZ FF:10:26 and AZ FF:10:27). The current survey relocated site AZ FF:10:26 which consists of numerous trash piles representing multiple episodes of refuse dumping from the turn of the century and later (Martyne et al. 1994:116-119). Site AZ FF:10:27 is located west of Dolores Street and lies outside the area of proposed action. Two isolated manifestations were identified and fully recorded. These consist of historic trash dumps dating to the turn of the century and slightly later. A total of 22 acres (ac) was surveyed along the Douglas, East Segment.

##### 3.1.5.1.2 Douglas, West Segment

The Douglas, West Segment originates at the Douglas POE and proceeds approximately 3.0 mi west along the border fenceline. The first mile of this segment can also be characterized as being "urbanized," as it contains stock pens, a city sewage disposal facility, and enormous "slag" piles from the old Copper Queen Smelter. The remaining 2.0 mi west of Whitewater Draw are primarily undisturbed, consisting of slightly undulating topography typical of the Sulphur



Springs Valley region. This segment was also previously surveyed by GMI in 1991, when two archeological sites (AZ FF:10:21 and AZ FF:10:22) were documented. The current survey relocated both of these sites along Whitewater Draw. Site AZ FF:10:21 is a historic trash scatter, and site AZ FF:10:22 is a multicomponent prehistoric site. Approximately 36 ac were surveyed along this segment.

#### 3.1.5.2 Field Methods

The cultural resources survey was conducted along approximately 5.0 mi of the international land border between Douglas, Arizona, and Agua Prieta, Mexico. A centerline for this survey corridor lies 150 ft off the international border with a 50-ft right-of-way on each side of the flagged centerline. Two segments of survey were conducted during this investigation. These consist of a 2.0-mi segment east of the Douglas POE, and a 3.0-mi segment west of the Douglas POE. Site locations and isolated occurrences were plotted on the appropriate U.S. Geological Survey (USGS) 7.5 minute quadrangle map (Douglas, Arizona) when needed or required. Previously recorded sites were relocated using maps and site forms from the Arizona State Museum (ASM) data base. Isolated occurrences were analyzed completely in the field, and their research potential is considered exhausted.

In distinguishing between archeological sites and isolated occurrences, three criteria were used as standard measures for evaluating the significance of cultural manifestations in the project area: surficial artifact density, diversity, and potential for buried deposits. Low density scatters lacking diversity of artifact types were generally not recorded as sites. Isolated features, such as hearths, that lacked associated artifact assemblages and did not include evidence of intact deposits (i.e., eroded context) were similarly recorded as isolates.

#### 3.1.5.3 Survey Results

No new archeological sites were identified and only two isolated manifestations were documented. Three previously recorded sites (AZ FF:10:21, AZ FF:10:22, and AZ FF:10:26) were relocated but not updated, as current findings agree with their original documentation. Two of these sites (AZ FF:10:21 and AZ FF:10:26) are historic trash dumps and scatters dating to the turn of the century and slightly later; site AZ FF:10:22 is a multicomponent prehistoric procurement and processing location. The two isolated manifestations were located along the Douglas, East Segment, and consist of what appears to be single-episode refuse dumping. These dumping events date to the turn of the century or slightly later.

##### 3.1.5.3.1 Douglas, East Segment

No new sites were identified within this segment and only two isolated occurrences were observed and documented. One previously recorded site (AZ FF:10:26) was revisited but not updated during the survey. The two isolated manifestations consist of what appears to be single-episode refuse dumping dating to the turn of the century or slightly later. Findings observed during this current survey are in agreement with the original recording of AZ FF:10:26, in that the research potential of this site is extremely limited; therefore, AZ FF:10:26 is recommended to

be ineligible for inclusion on the National Register of Historic Places (NRHP) and needs no additional treatment (Martyneec et al. 1994:120). The two isolated occurrences are considered fully documented, and their research potential is thought to be exhausted.

#### 3.1.5.3.2 Douglas, West Segment

No new sites or isolated occurrences were identified within this segment, although two previously recorded sites (AZ FF:10:21 and AZ FF:10:22) were revisited but not updated. Findings observed during this current survey are in agreement with the original documentation of AZ FF:10:21 and AZ FF:10:22. The research potential of AZ FF:10:21 is extremely limited; therefore, it is recommended to be ineligible for inclusion on the NRHP and needs no additional treatment. Site AZ FF:10:22 is recommended as eligible for inclusion in the NRHP and should be avoided (Martyneec et al. 1994:66).

### 3.1.6 Socioeconomic Resources

#### 3.1.6.1 Population

The region of influence (ROI) for the proposed action includes Cochise County in southeastern Arizona. Total population of the ROI in 1995 was 110,062, which represents an annual growth rate of 2.4 percent over the 1990 population of 97,624. The ROI population is distributed 80 percent white, 5 percent black, and the remaining 15 percent of different ethnic backgrounds. Persons of Hispanic origin, which can be of any race, make up 29 percent of the ROI population (U.S. Department of Commerce [USDC] 1994a).

The proposed action is located within the Douglas city limits along the United States-Mexico border. The most recent population estimate for Douglas was 13,743 persons in 1994, which represents an annual growth rate of 1.7 percent over the 1990 population of 12,822. The ethnic distribution of persons in Douglas is 71 percent white, 1 percent black, and the remaining 28 percent of different ethnic backgrounds. Persons of Hispanic origin make up 83 percent of the population in Douglas, which is significantly higher than the remainder of the ROI (USDC 1994a).

#### 3.1.6.2 Employment and Income

Total employment for the ROI in 1994 was 42,849, which represents an annual growth rate of 1.2 percent over total employment in 1990 (USDC 1994b). Employment in the ROI is concentrated in the government, service, and retail trade sectors which combined to represent 77.5 percent of total employment in 1994. The largest employment sector is the government which accounts for 38.7 percent of the total. Compared to national figures, the government sector in the ROI is significantly larger than the national share of 15.0 percent, while the percentage of persons in the service industry in the ROI is less than the national average. The ROI unemployment rate in 1995 was 9.2 percent, significantly higher than the state and national averages (Arizona Department of Economic Security Research Administration 1994; U.S. Department of Labor 1994).

Total personal income for the ROI in 1994 was \$1.6 billion. The leading sectors for income are the same as those of employment. Government, services, and retail trade produce 79.2 percent of the income in the region. The government sector is the largest income sector, accounting for 51.3 percent of income. The wholesale trade industry is the fastest growth income and employment sector with annual growth rates of 13.9 percent for income and 8.2 percent for employment from 1990 to 1994. The trade industry is expected to continue to grow rapidly in the ROI as the effects of the North American Free Trade Agreement are fully realized. Per capita personal income was \$14,764 in 1994, which was significantly lower than the national average of \$21,696 (USDC 1994c).

### **3.2 Environmentally Preferred Alternative**

The existing environment for the environmentally preferred alternative is similar to the proposed project area and is described in detail in a previous EA prepared for a road maintenance and construction project in the construction corridor (U.S. Army 1996a). For this 1996 EA, surveys for cultural and biological resources were conducted along an approximately 50-mi long by 50-m (150-ft) wide right-of-way north of the United States-Mexico border, from a point approximately 20 mi east of Douglas, Arizona, to a point approximately 30 mi west of Douglas, Arizona (U.S. Army 1996b). The land use, water resources, air quality, threatened and endangered species, and socioeconomic resources within the environmentally preferred alternative project area are identical to those resources within the proposed project area. The vegetation, fish, and wildlife habitats are also similar in both the proposed action and the environmentally preferred alternative areas, although the amount of habitat loss would be less in the environmentally preferred alternative right-of-way because it is next to an existing road.

The cultural resources along the environmentally preferred alternative right-of-way was described in detail in the 1996 EA (U.S. Army 1996a). One cultural resource site is located along the environmentally preferred alternative right-of-way. The site, AZ FF:10:22, is west of the Douglas POE (U.S. Army 1996a) and was determined to be eligible for inclusion in the NRHP.

## 4.0 ENVIRONMENTAL CONSEQUENCES

This chapter describes potential impacts to the project area from the proposed action, the environmentally preferred alternative, and the no action alternative. The information used to analyze impacts included a site visit, literature review, and past environmental documents (U.S. Army 1991, 1993, 1996a, 1997). Cumulative impacts of all proposed JTF-6 actions along the United States-Mexico border were initially analyzed in the 1994 PEIS (INS/JTF-6 1994). Each EA completed for individual actions along the border document potential action-specific consequences and re-evaluate cumulative impacts.

### 4.1 Proposed Action

#### 4.1.1 Land Use

The proposed action would not alter land use. The proposed action would not impact grazing and pasture land along the border. Additionally, there would be a beneficial effect as a result of an expected decrease in property damage in the City of Douglas. Overall, no significant impacts to land use would be expected.

#### 4.1.2 Water Resources

No wetlands were located within the proposed project corridor. Four drainage channels cross the proposed project corridor, all west of the POE. Impacts to these drainages would be restricted to the width of the road crossings and would only include graded dirt fords. These installations would be designed to allow for the normal flow of water.

Activities that result in the dredging and/or filling of jurisdictional waters of the United States are regulated under Section 404 of the CWA. The USACE has established Nationwide Permits (NWP) to efficiently authorize common activities which do not significantly impact waters of the United States. The NWP were modified and reissued by the USACE in the Federal Register (Volume 61, Number 241) on 13 December 1996, with an effective date of 11 February 1997. The USACE has the responsibility to authorize permitting under a NWP, or to require an Individual Permit.

Each proposed drainage crossing is pending authorization of a NWP 14, *Road Crossings*. The NWP 14 authorizes the discharges of fill material for roads crossing waters of the United States (including special aquatic sites), provided the activity meets certain criteria. The fill placed in waters of the United States is limited to a filled area of no more than 1/3 ac. Furthermore, no more than a total of 200 linear feet of the fill for the roadway can occur in special aquatic sites, including wetlands.

The proposed project activities meet the conditions of the NWP 14. Less than 1/3 ac of fill would be placed in waters of the United States. No fill would be placed in special aquatic sites such as wetlands. Therefore, it is presently assumed that a NWP 14, *Road Crossings*, would be applicable for the proposed action.

The specific requirements for NWP 14, the General Conditions, and the Section 404 Only Conditions are included in Appendix C. A pre-construction notice (PCN) complying with General Condition 13 should be delivered to the District Engineer at least 30 days prior to the start of construction. However, a 90- to 180-day PCN is normally recommended to help prevent delays from review by other regulatory agencies, or in order to apply for an Individual Permit (if the USACE requires).

#### 4.1.3 Air Quality

Air quality impacts from construction activities include (1) emissions due to fuel combustion from heavy equipment, and (2) fugitive dust due to travel through the construction area. Emissions and fugitive dust associated with the proposed action were quantified using equipment-specific emissions factors from *Compilation of Air Pollutant Emission Factors, Volume II: Mobile Sources* (EPA 1985). These estimations indicate that this proposed action would be exempt from air conformity analysis under 40 CFR 51.853 and Section 176 of the CAA. Based on the proposed operation of the construction equipment (12 hours/day, six days/week), total emissions from fuel combustion during construction activities were estimated for particulates (PM<sub>10</sub>; Table 4-1). The project area is in a nonattainment area for PM<sub>10</sub>. Border exemption for this pollutant eliminates the requirement of further pollutant-specific analysis; however, the estimate for this pollutant (2.169 tons) is well below the levels acceptable in a nonattainment area (70 tons/year; 40 CFR 51.853). Although quantitative analysis of fugitive dust levels was not performed, impacts are not expected to be significant; use of a water truck during all ground-disturbing activities would decrease fugitive dust. Water for this use would be obtained from municipal supplies. Overall, levels of emissions and fugitive dusts from fuel combustion sources would be below *de minimis* emission levels and would be insignificant.

#### 4.1.4 Biological Resources

##### 4.1.4.1 Vegetation

The primary direct effect of the proposed action would be the potential loss of vegetation and wildlife habitat. The eastern 2.5 mi of the proposed project corridor contain approximately 40 percent disturbed clearings; the western 2.3 mi are only 20 percent disturbed. Therefore, the proposed construction of an 8-ft wide road would involve less than five acres of new disturbance along the corridor which would include areas that are currently denuded of vegetation. Vegetation outside the proposed construction area would not be disturbed.

Table 4-1

## Summary of Construction Emissions and Fugitive Dust from Fuel Combustion Sources

| Source (#)            | PM <sub>10</sub> (lb/hr)* |
|-----------------------|---------------------------|
| Tool Carrier (1)      | 0.276                     |
| Backhoe w/ Auger (1)  | 0.138                     |
| Flat Bed Truck (5)    | 0.639                     |
| Grader (1)            | 0.030                     |
| Water Truck (1)       | 0.225                     |
| Crane (1)             | 0.138                     |
| Forklift (1)          | 0.138                     |
| Pickup Truck (2)      | 0.417                     |
| 4x4 Truck (1)         | 0.138                     |
| <b>Total (tons)**</b> | <b>2.169</b>              |

\*Derived using *Compilation of Air Pollutant Emission Factors, Volume II: Mobile Sources* (EPA 1985).

\*\*Based on a three-week period for both phases of proposed action.

## 4.1.4.2 Fish and Wildlife

Wildlife populations in the project area would not be significantly impacted by habitat loss due to the small area affected, the linear nature of the clearing, and the highly disturbed nature of the majority of the project corridor. Therefore, the proposed action would not result in a significant reduction in the number of animals whose home range is within or adjacent to the proposed project corridor, and no change in the overall species composition of the area would be expected.

Wildlife movement in the project area would potentially be impacted by the proposed action. However, due to the degraded and disturbed condition of the proposed project corridor, wildlife occurrences within the corridor are sporadic and impacts to wildlife species should be minimal. The greatest movement of small animals generally happens when a disturbance such as road grading or dozing occurs. Mobile animals would escape to areas of similar habitat, while other slow or sedentary animals which utilize burrows (amphibians, lizards, and some small mammals) in the corridor could be lost. This displacement and/or reduction in the number of animals would not severely impact animal communities due to the small area affected, the scattered nature of the affected area, and the presence of similar habitat adjacent to the corridor.

Impacts to wildlife resulting from operation of the high intensity lighting at night could occur, but are difficult to assess. In general, night lights attract and concentrate insects, which in turn attract insectivorous animals such as some bats. An increase in dead insects could also be expected on the ground near the light structures, which could also attract more insectivores, and possibly animals that prey upon these insectivores. However, any change from baseline conditions should quickly stabilize after beginning operation of the lights. Some nocturnal

animals may avoid the lighted areas. Impacts to wildlife should not be significant since the area is highly impacted by human activities.

#### 4.1.4.3 Threatened and Endangered Species

Under the ESA, formal consultation with the USFWS is required for any action that may affect listed species. Additionally, Federal agencies are required to ensure that any action authorized, funded, or carried out by such agencies is not likely to jeopardize the continued existence of any threatened or endangered species. No protected species or their habitat were observed during the survey conducted for this EA, or for EAs prepared for previous actions in the area (U.S. Army 1991, 1993, 1996a, 1997). Therefore, no impacts to these species resulting from the proposed action would be expected.

Habitat requirements for listed plants, including limestone outcrops, high elevations, and cliffs, are not present in or adjacent to the proposed project corridor. The corridor is located in deep alluvial soils on a basin floor at approximately 4,000 ft. A small, isolated riparian area was present within the ephemeral Whitewater Draw at the international border. This 20-ft x 80-ft area of cattails was restricted to the OHWM of the channel north of the border and was apparently caused by the border road impeding flow through the channel. The Canelo Hills ladies' tresses and Huachuca water umbel were not observed at this location and are not expected to occur due to its small, isolated nature, the absence of suitable associate species, and the high density of cattails.

Habitat requirements for listed fish and amphibians, including streams, pools, and impoundments, are not present in or adjacent to the proposed project corridor. Therefore, listed fish and amphibian species are not expected to occur in or adjacent to the corridor.

The New Mexican ridge-nosed rattlesnake requires canyon bottoms in pine-oak and pine-fir communities. These requirements are not located in or adjacent to the proposed project corridor.

Habitat requirements for listed birds, including cliffs, lakes, rivers, riparian areas, canyonlands, dense forests, grasslands, marshes, and prairies, are not present in or adjacent to the proposed project corridor. The proposed project corridor is composed of mid-elevation desert thorn scrub and does not contain cliffs, open water, forests, or grasslands.

The lesser long-nosed bat requires caves, agaves, and columnar cacti. Suitable roosting and feeding habitat for the lesser long-nosed bat is not present within or adjacent to the proposed project corridor. The Mexican gray wolf occupies chaparral, woodlands, and forests. The wolf could cross desert areas (such as the proposed project corridor) but would not remain. The ocelot and jaguarundi are commonly associated with riparian corridors, which are not located in or adjacent to the proposed project area. Little is known about jaguar habitat in Arizona. The jaguar may be found in a variety of habitats from Sonoran desert to conifer forests. Riparian corridors have long been thought to be important to jaguars, but recent sightings in Arizona have all been in foothills (Palmer 1998). These habitat requirements are not present in or adjacent to the proposed project corridor.

General habitat requirements for the species federally listed, or proposed for listing, in Cochise County do not occur in the immediate area surrounding the proposed project corridor (see Table 3-2). Therefore, the listed species are not expected to occur in or adjacent to the project corridor, and no impacts to these species resulting from the proposed action would be expected.

#### 4.1.5 Cultural Resources

A records search conducted at ASM prior to archeological fieldwork identified a total of three previously recorded sites within the proposed project right-of-way. All of the previously recorded sites were revisited during the survey. As a result of the current survey, no new archeological sites were found and only two isolated manifestations were identified and recorded. Two of the three sites (AZ FF:10:21 and AZ FF:10:26) are considered to have extremely limited potential and are recommended to be ineligible for inclusion on the NRHP. The remaining site, AZ FF:10:22, is recommended to be eligible for inclusion on the NRHP and should be avoided.

#### 4.1.6 Socioeconomic Resources

The proposed action would provide indirect economic benefits to the broader economy through economic multiplier effects. The impacts on socioeconomic resources in the ROI will be discussed in the following sections. Specific characteristics to be discussed are population, employment, income, and business sales.

Activities associated with the proposed action would have insignificant impacts on population, employment, income, and business sales. The installation would be performed by military personnel who would be brought in and would stay at the National Guard Armory with no outside requirements for sustenance. Additional hiring would not be expected. Thus, the proposed action would not induce permanent in- or out-migration to the ROI, and as a result, population would not be impacted. In addition, there would be no impacts on employment, income, and business sales due to the self-sufficiency of the military personnel conducting the action. Any potential impacts from the proposed action would be absorbed into the broader economy.

Executive Order 12898 of 11 February 1994, *Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations*, provides that each Federal agency shall identify and address, as appropriate, disproportionately high and adverse human health or environmental effects of its programs, policies, and activities on minority populations and low-income populations in the United States. The proposed project site is located in a rural area with a significant percentage of minorities (see Section 3.1.6). The demographics of the project area, however, are similar to the characteristics of the broader ROI.

The proposed project site has a small population base which includes the community of Douglas. The proposed action would occur adjacent to an existing fence site and would not restrict the flow of legal visitation, trade, and immigration. There would, therefore, be no expected disproportionately high and adverse impacts on minority and low-income populations. Under the



definition of Executive Order 12898, there would be no adverse environmental justice impacts as a result of the proposed action.

#### **4.2 Environmentally Preferred Alternative**

Potential impacts on land use, water resources, air quality, threatened and endangered species, and socioeconomics resources in the preferred alternative project area would be similar to those resulting from the proposed action. Impacts to vegetation would be less than those resulting from the proposed action because less vegetation would be disturbed. Consequently, indirect impacts to wildlife would be of a less magnitude.

One cultural resource site, AZ FF:10:22, is located along the right-of-way. Avoidance of site AZ FF:10:22 would mitigate any potential impacts to the site and result in no cultural resource impacts.

#### **4.3 No Action**

The no action alternative would essentially result in continuing the status quo for the USBP. The no action alternative would not result in any significant impacts to soils, air quality, water resources, cultural resources, or land use. The no action alternative would not include any changes in employment or construction and would therefore have no impact on socioeconomic parameters. The negative socioeconomic impacts of the illegal activities would continue. Information on the societal costs of illegal drug trafficking, use, and sales, and illegal immigration have been previously documented (INS/JTF-6 1994). Benefits expected from the proposed action would not occur if the no action alternative is selected.

#### **4.4 Cumulative Impacts**

The assessment of cumulative impacts is addressed in NEPA by its reference to interrelationships of all components of the natural environment. The CEQ defined cumulative impact as the incremental impact of multiple present and future actions with individually minor but collectively significant effects. Cumulative impact can be concisely defined as the total effect of multiple land uses and developments, including their interrelationships, on the environment (Bain et al. 1986).

In order to evaluate cumulative effects of the past and present JTF-6 actions, EAs from previous and current operations in the region and the 1994 PEIS developed for all JTF-6 activities along the United States-Mexico border were reviewed. An analysis of each component of the affected environment was completed from the existing EAs in order to identify which would have cumulative impacts as a result of the past and proposed operations. This analysis revealed that land use, air quality, threatened and endangered species, cultural resources, and socioeconomic resources of past and proposed action areas would not be subjected to cumulative impacts due to the temporary nature of construction activities. Water and biological resources (i.e., vegetation and wildlife habitat) would be slightly to moderately affected cumulatively from past and proposed actions.

Potential adverse impacts to AZ FF:10:22 can be avoided by limiting horizontal expansion of the existing roadbed within and adjacent to this property. The cumulative impacts to AZ FF:10:22 should be negligible, since previous road construction and maintenance have impacted site contexts. Any activities in this area should stay within the current roadbed. Other portions of this site should be avoided.

The primary cumulative effect of the past and proposed actions is the permanent loss of vegetation and associated wildlife habitat. Installation of the light poles and creation of an 8-ft wide right-of-way would increase loss of vegetation, including semidesert grassland and desert scrub habitat, due to all past and proposed JTF-6 operations. This habitat loss would be insignificant due to the relatively small amount of development and the vast amount of remaining habitat. The proposed action also would result in insignificant loss of wildlife habitat since the area was previously disturbed.

If implemented, following a finding of no significant impact, the proposed action would result in the loss of less than five acres of degraded/disturbed vegetation. Overall, a total of about 2,500 ac of vegetation, mostly semidesert grassland and desert scrub communities, have been removed by JTF-6 road, range, fence, and helipad repair and construction activities along the United States-Mexico border (California to Texas). This represents less than 0.01 percent of the total land area within the area along the entire United States-Mexico border. Soil losses have been minimized through limiting the amount of area disturbed during the proposed action and using standard construction practices. Although the amount of soils saved is not quantifiable, JTF-6 operations have reduced extant erosion problems in numerous locations. Air emissions have been produced by vehicles, aircraft, and heavy equipment; however, these have not resulted in significant cumulative impacts due to the short duration of the activities, the dispersion capabilities of the region, and the remote locations of most of the operations. Construction and maintenance activities have had cumulative positive impacts on socioeconomic resources within the border area and the nation through reductions in illegal drug smuggling activities and, secondarily, through reductions in illegal immigration. Future impacts are anticipated to occur at a level consistent with past activities and not result in significant adverse effects (INS/JTF-6 1994).

## **5.0 ENVIRONMENTAL DESIGN MEASURES**

This chapter describes environmental design measures that would be implemented as part of the proposed action to reduce or eliminate impacts from the proposed action. Due to the limited nature of the proposed action, impacts are expected to be slight. Therefore, environmental design measures are described only for those resources with potential for impacts.

### **5.1 Water Resources**

All work would stop during heavy rains and would not resume until conditions are suitable for movement of equipment and material. By following methods outlined in the PPP for the fence construction activity (U.S. Army 1997), no significant impacts would be expected during the proposed action.

### **5.2 Air Quality**

To reduce exhaust emissions, construction vehicles would be maintained per normal standards. Additional preventive measures that would be implemented to minimize potential particulate pollution problems include use of water trucks, minimization of vehicular and machinery activities, and minimization of dirt track-out by washing or cleaning trucks away from drainages before leaving the proposed construction area.

### **5.3 Biological Resources**

Impacts to existing vegetation during proposed construction activities would be minimized through flagging the proposed right-of-way to ensure personnel do not go outside the proposed corridor.

### **5.4 Cultural Resources**

One cultural resource site, AZ FF:10:22, is considered eligible or potentially eligible for inclusion in the NRHP, and should not be disturbed. Avoidance of the site would ensure that the proposed action would have no effect on the cultural resources of the region. Avoidance would be accomplished by flagging and/or staking prior to construction. A buffer zone would be created by the placement of flagging/staking at least 96.5 ft beyond site boundaries. The flagging or staking would be removed once construction activities have been completed.

### **5.5 Soils**

Soil disturbance at crossings of waters of the United States would be minimized to lessen potential impacts to these sensitive areas.

## **6.0 PUBLIC INVOLVEMENT**

### **6.1 Agency Coordination**

This chapter discusses consultation and coordination that occurred during preparation of this document. This includes contacts made during development of the proposed action, elimination of alternatives, and writing of the EA. Copies of agency coordination letters are presented in Appendix D. Formal and informal coordination has been conducted with the following agencies:

- U.S. Army Corps of Engineers (USACE Fort Worth District),
- Joint Task Force Six (JTF-6),
- Immigration and Naturalization Service (INS; U.S. Border Patrol [USBP]),
- Arizona State Museum (ASM),
- U.S. Fish and Wildlife Service (USFWS),
- International Boundary and Water Commission (IBWC),
- Arizona Department of Agriculture, and
- Arizona Game and Fish Department.

### **6.2 Public Review**

The draft version of this document was made available for public review. In accordance with NEPA and Army Regulation 200-2 (Environmental Effects of Army Actions), a 30-day review period of the draft EA was provided. Public comments and responses to comments are presented in Appendix E of the Final EA.

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## 8.0 LIST OF ACRONYMS/ABBREVIATIONS

|                 |   |   |
|-----------------|---|---|
| A.D.            | = | Anno Domini (in the year of the Lord)       |
| AAM             | = | Annual Arithmetic Mean                      |
| AAQS            | = | Ambient Air Quality Standards               |
| ac              | = | acres                                       |
| ADEQ            | = | Arizona Department of Environmental Quality |
| AGM             | = | Annual Geometric Mean                       |
| AHPA            | = | Archeological and Historic Preservation Act |
| a.m.            | = | ante meridian (before noon)                 |
| AR              | = | Army Regulation                             |
| ASM             | = | Arizona State Museum                        |
| B.C.            | = | Before Christ                               |
| B.P.            | = | Before Present                              |
| C               | = | Candidate                                   |
| ca              | = | circa (about)                               |
| CAA             | = | Clean Air Act                               |
| CFR             | = | Code of Federal Regulations                 |
| CO              | = | carbon monoxide                             |
| CWA             | = | Clean Water Act                             |
| DOD             | = | Department of Defense                       |
| E               | = | Endangered                                  |
| EA              | = | Environmental Assessment                    |
| eds.            | = | editors                                     |
| EPA             | = | Environmental Protection Agency             |
| ESA             | = | Endangered Species Act                      |
| et al.          | = | et alii (and others)                        |
| etc.            | = | et cetera (and others)                      |
| ft              | = | feet  |
| GMI             | = | Geo-Marine, Inc.                            |
| IBWC            | = | International Boundary and Water Commission |
| i.e.            | = | id est (that is)                            |
| in              | = | inches                                      |
| INS             | = | Immigration and Naturalization Service      |
| JTF-6           | = | Joint Task Force Six                        |
| km              | = | kilometers                                  |
| lbs             | = | pounds                                      |
| LEA             | = | Law Enforcement Agency                      |
| m               | = | meter                                       |
| m <sup>2</sup>  | = | square meter                                |
| MET             | = | meteorological                              |
| mi              | = | mile  |
| mi <sup>2</sup> | = | square mile                                 |
| NAAQS           | = | National Ambient Air Quality Standards      |
| NDCS            | = | National Drug Control Strategy              |

|                   |   |   |
|-------------------|---|---|
| NEPA              | = | National Environmental Policy Act                   |
| NHPA              | = | National Historic Preservation Act                  |
| NO <sub>x</sub>   | = | nitrogen oxide                                      |
| No.               | = | Number  |
| NRHP              | = | National Register of Historic Places                |
| NWP               | = | Nationwide Permits                                  |
| O <sub>3</sub>    | = | ozone   |
| P.L.              | = | Public Law  |
| Pb                | = | lead  |
| PCN               | = | Pre-Construction Notice                             |
| PE                | = | Proposed Endangered                                 |
| PEIS              | = | Programmatic Environmental Impact Statement         |
| PM <sub>10</sub>  | = | Particulate matter less than 10 microns in diameter |
| POE               | = | Port of Entry                                       |
| ppm               | = | parts per million                                   |
| PPP               | = | Pollution Prevention Plan                           |
| PSD               | = | Prevention of Significant Deterioration             |
| ROI               | = | Region of Influence                                 |
| SIP               | = | State Implementation Plan                           |
| SO <sub>x</sub>   | = | sulfur oxide  |
| SOC               | = | Species of Concern                                  |
| spp.              | = | species   |
| T                 | = | Threatened  |
| µg/m <sup>3</sup> | = | micrograms per cubic meter                          |
| USACE             | = | U.S. Army Corps of Engineers                        |
| USBP              | = | U.S. Border Patrol                                  |
| USDC              | = | U.S. Department of Commerce                         |
| USFWS             | = | U.S. Fish and Wildlife Service                      |
| USGS              | = | U.S. Geological Survey                              |
| var.              | = | variety   |
| vol.              | = | volume  |



## 9.0 LIST OF PREPARERS

The following people were primarily responsible for preparing this EA.

| <u>NAME</u>   | <u>DISCIPLINE/<br/>EXPERTISE</u> | <u>EXPERIENCE</u>  | <u>ROLE IN PREPARING EA</u>   |
|---|----------------------------------|--|---|
| Ms. Linda Ashe<br>U.S. Army Corps of<br>Engineers, Fort Worth<br>District | Biology                          | 3 years NEPA - EA studies  | Contract Manager; EA review<br>and coordination   |
| Mr. Thomas Ball<br>Geo-Marine, Inc.                                       | Environmental<br>Science         | 4 years NEPA - EA studies  | Project Manager; Chapters 1, 2;<br>Land Use, Air Quality, in<br>Chapters 3 and 4                  |
| Mr. Chris Beacham<br>Geo-Marine, Inc.                                     | Socioeconomics                   | 5 years economic analyses and<br>EA/EIS studies  | Socioeconomics in Chapters 3<br>and 4   |
| Mr. Milton Blankenship<br>JTF-6   | Geology                          | 22 years geology, military<br>engineering operations and<br>planning, and geohydrology | EA coordination and review  |
| Mr. Chris Ingram<br>Geo-Marine, Inc.                                      | Biology                          | 20 years biological and NEPA-<br>EA/EIS studies  | EA review   |
| Mr. Joseph Kaskey<br>Geo-Marine, Inc.                                     | Biology                          | 24 years biological and NEPA<br>- EA/EIS studies                                       | EA review and editing   |
| Mr. Cody Browning<br>Geo-Marine, Inc.                                     | Archeology                       | 8 years cultural resource<br>management (CRM) studies                                  | Project Archeologist; Cultural<br>resources in Chapters 3 and 4                                   |
| Mr. Rudolph Reinecke<br>Geo-Marine, Inc.                                  | Biology/<br>Wetlands             | 4 years environmental studies  | Field biologist; vegetation<br>surveys and wetland delineations                                   |
| Mr. David Pitts<br>Geo-Marine, Inc.                                       | Biology/<br>Ecology              | 7 years NEPA - EA studies  | Field biologist; Natural Resources<br>and Jurisdictional Waters of the<br>U.S in Chapters 3 and 4 |
| Dr. Dan Wilkinson<br>Geo-Marine, Inc.                                     | Botany                           | 27 years biological studies and<br>NEPA - EA studies                                   | Program Manager   |

# APPENDICES

## **APPENDIX A**

### **List of Endangered, Threatened, and Candidate Species for the State of Arizona, USFWS - Southwest Region**



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- Mammals
- Birds
- Reptiles
- Amphibians
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## U.S. Fish and Wildlife Service - Southwest Region

### Endangered and Threatened Species

### List of Endangered, Threatened, and Candidate Species for the State of Arizona

Last Update: August 08, 1997 10:53 AM

#### Mammals

| Common Name            | Scientific Name                            | Status              | Range in New Mexico                                |
|------------------------|--|---------------------|--|
| Black-Footed Ferret    | <i>Mustela nigripes</i>                    | Endangered          | Coconino, Apache, Navajo, Greenlee                 |
| Hualapai Mexican Vole  | <i>Microtus mexicanus hualpaiensis</i>     | Endangered          | Mohave, Yavapai, Coconino                          |
| Jaguar, U.S. Pop.      | <i>Panthera onca</i>                       | Proposed Endangered | Cochise, Pima, Santa Cruz                          |
| Jaguarundi             | <i>Felis yagouaroundi tolteca</i>          | Endangered          | Santa Cruz, Pima, Cochise                          |
| Lesser Long-Nosed Bat  | <i>Leptonycteris curasoae yerbabuenae</i>  | Endangered          | Cochise, Pima, Santa Cruz, Graham, Pinal, Maricopa |
| Mexican Gray Wolf      | <i>Canis lupus baileyi</i>                 | Endangered          | Cochise, Graham, Pima, Santa Cruz                  |
| Mt Graham Red Squirrel | <i>Tamiasciurus hudsonicus grahamensis</i> | Endangered          | Graham   |
| Ocelot                 | <i>Felis pardalis</i>                      | Endangered          | Santa Cruz, Pima, Cochise                          |
| Sonoran Pronghorn      | <i>Antilocapra americana sonoriensis</i>   | Endangered          | Pima, Yuma, Maricopa                               |

#### Birds

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| Common Name                    | Scientific Name                        | Status              | Range in New Mexico   |
|--------------------------------|--|---------------------|---|
| American Peregrine Falcon      | <i>Falco peregrinus anatum</i>         | Endangered          | La Paz, Navajo, Coconino, Mohave, Santa Cruz, Apache, Gila, Yavapai, Pima, Graham, Greenlee, Maricopa, Pinal, Cochise       |
| Bald Eagle                     | <i>Haliaeetus leucocephalus</i>        | Endangered          | Yavapai, Gila, Maricopa, Mohave, Coconino, Navajo, Apache, Pinal, La Paz, Greenlee, Graham, Yuma, Pima, Cochise, Santa Cruz |
| Brown Pelican                  | <i>Pelicanus occidentalis</i>          | Endangered          | Yuma, La Paz, Mohave, Pinal   |
| Cactus Ferruginous Pygmy-owl   | <i>Glaucidium brasilianum cactorum</i> | Proposed Endangered | Maricopa, Yuma, Santa Cruz, Graham, Greenlee, Pima, Pinal, Gila, Yavapai  |
| California Condor              | <i>Gymnops californianus</i>           | Endangered          | Mohave  |
| Masked Bobwhite                | <i>Colinus virginianus ridgwayi</i>    | Endangered          | Pima  |
| Mexican Spotted Owl            | <i>Strix occidentalis lucida</i>       | Threatened          | Yavapai, Gila, Maricopa, Mohave, Coconino, Navajo, Apache, Pinal, Greenlee, Graham, Pima, Cochise, Santa Cruz               |
| Northern Aplomado Falcon       | <i>Falco femoralis septentrionalis</i> | Endangered          | Santa Cruz, Cochise   |
| Southwestern Willow Flycatcher | <i>Empidonax traillii eximius</i>      | Endangered          | Yavapai, Gila, Maricopa, Mohave, Coconino, Navajo, Apache, Pinal, La Paz, Greenlee, Graham, Yuma, Pima, Cochise, Santa Cruz |
| Whooping Crane                 | <i>Grus americana</i>                  | Endangered          | Cochise, Graham   |
| Yuma Clapper Rail              | <i>Rallus longirostris yumanensis</i>  | Endangered          | La Paz, Yuma, Maricopa, Mohave, Pinal, Pima   |

Reptiles

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| Common Name                        | Scientific Name                                  | Status              | Range in New Mexico |
|------------------------------------|--|---------------------|---------------------|
| Flat-tailed Horned Lizard          | <i>Phrynosoma mcallii</i>                        | Proposed Threatened | Yuma                |
| Mohave Desert Tortoise             | <i>Gopherus agassizii</i><br>(mohave population) | Threatened          | Mohave              |
| New Mexico Ridge-nosed Rattlesnake | <i>Crotalus willardi</i><br><i>obscurus</i>      | Threatened          | Cochise             |
| Ramsey Canyon Leopard Frog         | <i>Rana subaquavocalis</i>                       | Proposed Endangered | Cochise             |

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| Common Name             | Scientific Name                     | Status              | Range in New Mexico  |
|-------------------------|-------------------------------------|---------------------|--|
| Chiricahua Leopard Frog | <i>Rana chiricahuensis</i>          | Proposed Endangered | Santa Cruz, Apache, Gila, Pima, cochise, Greenlee, Graham, Yavapai |
| Sonora Tiger Salamander | <i>Ambystoma tigrinum stebbinsi</i> | Proposed Endangered | Santa Cruz, Cochise  |

**Fish**[Back to Index](#)

| Common Name               | Scientific Name                               | Status              | Range in New Mexico  |
|---------------------------|---|---------------------|--|
| Apache (Arizona) Trout    | <i>Oncorhynchus apache</i>                    | Threatened          | Apache, Greenlee, Gila, Graham, Navajo   |
| Beautiful Shiner          | <i>Cyprinella formosa</i>                     | Threatened          | Cochise  |
| Bonytail                  | <i>Gila elegans</i>                           | Endangered          | Maricopa (Refugia), Mohave, La Paz   |
| Colorado Squawfish        | <i>Ptychocheilus lucius</i>                   | Endangered          | Gila, Yavapai  |
| Desert Pupfish            | <i>Cyprinodon macularius macularius</i>       | Endangered          | La Paz, Pima, Graham, Maricopa, Pinal, Yavapai, Santa Cruz                                 |
| Gila Topminnow            | <i>Poeciliopsis occidentalis occidentalis</i> | Endangered          | Gila, Pinal, Graham, Yavapai, Santa Cruz, Pima, Maricopa, La Paz                           |
| Gila Trout                | <i>Oncorhynchus gilae</i>                     | Endangered          | Yavapai  |
| Humpback Chub             | <i>Gila cypha</i>                             | Endangered          | Coconino, Mohave   |
| Little Colorado Spinedace | <i>Lepidomeda vittata</i>                     | Threatened          | Coconino, Apache, Navajo   |
| Loach Minnow              | <i>Tiaroga cobitis</i>                        | Threatened          | Pinal, Graham, Greenlee, Gila, Apache, Navajo  |
| Razorback Sucker          | <i>Xyrauchen texanus</i>                      | Endangered          | Greenlee, Mohave, Pinal, Yavapai, Yuma, La Paz, Maricopa (Refugia), Gila, Coconino, Graham |
| Sonora Chub               | <i>Gila ditaenia</i>                          | Threatened          | Santa Cruz   |
| Spikedace                 | <i>Meda fulgida</i>                           | Threatened          | Graham, Pinal, Greenlee, Yavapai   |
| Virgin River Chub         | <i>Gila seminuda</i>                          | Endangered          | Mohave   |
| Virgin Spinedace          | <i>Lepidomeda mollispinis mollispinis</i>     | Proposed Threatened | Mohave   |
| Woundfin                  | <i>Plagopterus argentissimus</i>              | Endangered          | Mohave   |
| Yaqui Catfish             | <i>Ictalurus pricei</i>                       | Threatened          | Cochise  |
| Yaqui Chub                | <i>Gila purpurea</i>                          | Endangered          | Cochise  |
| Yaqui Topminnow           | <i>Poeciliopsis occidentalis sonoriensis</i>  | Endangered          | Cochise  |

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|                       |                                   |                     |                     |
|-----------------------|-----------------------------------|---------------------|---------------------|
| Huachuca Springsnail  | <i>Pyrgulopsis thompsoni</i>      | Proposed Endangered | Cochise, Santa Cruz |
| Kanab Ambersnail      | <i>Oxyloma haydeni kanabensis</i> | Endangered          | Coconino            |
| Page Springsnail      | <i>Pyrgulopsis morrisoni</i>      | Proposed Endangered | Yavapai             |
| San Xavier Talussnail | <i>Sonorella eremita</i>          | Proposed Endangered | Pima                |
| Wet Canyon Talussnail | <i>Sonorella macrophallus</i>     | Proposed Endangered | Graham              |

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|                              |  |                     |                                   |
|------------------------------|--|---------------------|-----------------------------------|
| Acuna Cactus                 | <i>Echinomastus erectocentrus acunensis</i>    | Proposed Endangered | Pinal, Pima                       |
| Arizona Agave                | <i>Agave arizonica</i>                         | Endangered          | Yavapai, Maricopa, Gila,          |
| Arizona Bugbane              | <i>Cimicifuga arizonica</i>                    | Proposed Endangered | Coconino, Gila                    |
| Arizona Cliff Rose           | <i>Purshia subintegra</i>                      | Endangered          | Yavapai, Mohave, Maricopa, Graham |
| Arizona Hedgehog Cactus      | <i>Echinocereus triglochidiatus arizonicus</i> | Endangered          | Maricopa, Gila, Pinal             |
| Arizona Leather Flower       | <i>Clematis hirsutissima arizonica</i>         | Proposed Endangered | Coconino, Apache                  |
| Blumer's Dock                | <i>Rumex orthoneurus</i>                       | Proposed Endangered | Gila, Cochise                     |
| Brady Pincushion Cactus      | <i>Pediocactus bradyi</i>                      | Endangered          | Coconino                          |
| Canelo Hills Ladies' Tresses | <i>Spiranthes delitescens</i>                  | Proposed Endangered | Cochise, Santa Cruz               |



|                             |   |                     |                           |
|-----------------------------|---|---------------------|---------------------------|
| Catalina Beardtongue        | <i>Penstemon discolor</i>                     | Proposed Endangered | Cochise, Pima, Santa Cruz |
| Cochise Pincushion Cactus   | <i>Coryphantha robbinsorum</i>                | Threatened          | Cochise                   |
| Fickeisen Pincushion Cactus | <i>Pediocactus peeblesianus fickeiseniae</i>  | Proposed Endangered | Coconino, Mohave          |
| Gentry Indigo Bush          | <i>Dalea tentaculoides</i>                    | Proposed Endangered | Santa Cruz, Pima          |
| Goodding Onion              | <i>Allium gooddingii</i>                      | Proposed Endangered | Greenlee, Apache, Pima    |
| Huachuca Groundsel          | <i>Senecio huachucanus</i>                    | Proposed Endangered | Cochise, Santa Cruz       |
| Huachuca Water Umbel        | <i>Lilaeopsis schaffneriana ssp recurva</i>   | Proposed Endangered | Pima, Santa Cruz, Cochise |
| Jones' Cycladenia           | <i>Cycladenia humilis var jonesii</i>         | Threatened          | Mohave                    |
| Kaibab Plains Cactus        | <i>Pediocactus paradinei</i>                  | Proposed Endangered | Coconino                  |
| Kearney's Blue Star         | <i>Amsonia kearneyana</i>                     | Endangered          | Pima                      |
| Lemmon Fleabane             | <i>Erigeron lemmonii</i>                      | Proposed Endangered | Cochise                   |
| Navajo Sedge                | <i>Carex specuicola</i>                       | Threatened          | Apache, Navajo, Coconino  |
| Nichol Turk's Head Cactus   | <i>Echinocactus horizonthalonius nicholii</i> | Endangered          | Pima, Pinal               |
| Paradox Milk-vetch          | <i>Astragalus holmgreniorum</i>               | Proposed Endangered | Mohave                    |
| Parish Alkali Grass         | <i>Puccinellia parishii</i>                   | Proposed Endangered | Coconino, Pinal, Navajo   |
| Peebles Navajo Cactus       | <i>Pediocactus peeblesianus peeblesianus</i>  | Endangered          | Navajo                    |
| Pima Pineapple Cactus       | <i>Coryphantha scheeri robustispina</i>       | Endangered          | Pima, Santa Cruz          |

|                               |   |                     |                  |
|-------------------------------|---|---------------------|------------------|
| San Francisco Peaks Groundsel | <i>Senecio franciscanus</i>                 | Threatened          | Coconino         |
| Santa Cruz Beehive Cactus     | <i>Coryphantha recurvata</i>                | Proposed Endangered | Santa Cruz       |
| Sentry Milk-vetch             | <i>Astragalus cremnophylax cremnophylax</i> | Endangered          | Coconino         |
| Siler Pincushion Cactus       | <i>Pediocactus sileri</i>                   | Threatened          | Coconino, Mohave |
| Welsh's Milkweed              | <i>Asclepias welshii</i>                    | Threatened          | Coconino         |

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## **APPENDIX B**

### **Cultural History and Previous Research In the Douglas Area**

## ARCHAEOLOGICAL BACKGROUND

The archaeological background and cultural history sections that follow represent an in-depth summary of archaeological research in southeastern Arizona. For the cultural resources survey performed for this project, the previous investigations and overall cultural history synthesis for the Sulphur Springs Valley is important and provides a basis for the archaeological remains identified during this investigation. For the monitoring activities performed for this project and the regions covered, the archaeological syntheses provided below for the San Pedro, Sulphur Springs, and San Bernardino valleys are also important. The following text is taken from Martynec and others (1994), authors of a previous GMI report summarizing work performed on the U.S.-Mexican Border.

### PREVIOUS INVESTIGATIONS IN THE SAN PEDRO VALLEY

The San Pedro River valley was explored by A.F. Bandelier between 1880 and 1885. He stated:

I could not find any trace of antiquities in the narrow gorges that cleave the sierra, but on its northern base, around Fort Wallen, and on the Babocomari, traces of ruins are visible. While mounds [are] almost obliterated, foundations of small houses, and large enclosures formed by stones set on edge, may be distinguished, no clear conception can be obtained of the general plan and purpose of the structures. The artificial objects differ from those found along the San Pedro only in respect of the pottery, among which I found the ancient white and black, and red and black varieties, so abundant in more northern ruins [Bandelier 1892:489-490].

In 1928, Sauer and Brand (1930) conducted a survey of pueblo sites in southeastern Arizona. During their explorations of the area they documented the Ramsay Canyon Ruin that contains Chihuahua Polychrome pottery. From this and other observations they concluded that sites along the International Border in the San Pedro Valley are on the periphery of the Chihuahuan culture.

Based on results from the excavations at Snaketown (Gladwin *et al.* 1937), particularly the finding of Mogollon polished redware sherds, Gila Pueblo carried out extensive surveys and some excavations in the area to amplify the knowledge of southeastern Arizona prehistory (Sayles 1945). In order to address the problem of the polished redwares, they proposed to examine those sites that contained only plainware and redware pottery and no sites with decorated wares. From these efforts, Sayles (1945:v) concluded that the San Simon valley was very closely related to early phases in the San Francisco and Mimbres valleys. However, differences led Sayles (1945:vi) to refer to the culture in southeastern Arizona as the San Simon branch.

From the late 1930s through the 1940s, the Amerind Foundation also initiated a number of surveys and excavations in and around the San Pedro Valley. The impetus of these efforts was to counter Gila Pueblo's contentions that the earliest ceramic-producing group in the area was primarily Mogollon, with limited Hohokam influence. The Amerind Foundation believed that the cultural entity early in the sequence was Hohokam with only slight Mogollon influence. To support its hypothesis, the Amerind Foundation undertook several excavations in the area, two of which were conducted in the San Pedro Valley. The results of excavations at the Gleeson

site in the Sulphur Springs Valley were published by Fulton and Tuthill in 1940. Tuthill excavated the village site of Tres Alamos between 1940 and 1945, publishing the results in 1947. Babocomari Village, located on a tributary of the San Pedro River, was excavated by DiPeso (1951).

Based on excavations at the Gleeson and Tres Alamos sites, Tuthill (1947) concluded that the earliest phases (Cascabel and Tres Alamos) occurred during times of considerable Mogollon influence, whereas the final two phases (Tanque Verde and Tucson) were influenced almost entirely by Tucson Basin Hohokam. In response to contradictions with previous research in the area, Tuthill stated that Dagoon and Tres Alamos Red-on-brown "apparently . . . flourished side by side in the same general area at the same time, and yet did not mix" (1947:84).

Also excavated by the Amerind Foundation was Babocomari Village, a site at the north end of the Huachuca Mountains (DiPeso 1951). Based on crossdating with Hohokam and Salado ceramics, DiPeso concluded that the inhabitants of the village moved into the area during the Tucson phase, ca. A.D. 1200-1450. He further concluded that they brought their full culture with them at that time. Abandonment may have occurred as late as Apache times (DiPeso 1951:221-222).

Two mammoth sites were excavated in the San Pedro River valley during the 1950s. The first was the Naco Mammoth site, excavated in 1952 by the Arizona State Museum and the University of Arizona. The site is located on Greenbush Draw, a tributary of the San Pedro River. While this excavation was in progress, Edward Lehner, a local rancher, found bones 2.5 m below the present ground surface in an arroyo channel of the San Pedro River near Hereford, Arizona. Researchers from the Arizona State Museum identified them as mammoth tooth plates and subsequently excavated the Lehner Ranch site, interpreting it as a mammoth kill locale (Haury *et al.* 1959). Thirteen projectile points, primarily Clovis fluted types, eight butchering tools, and charcoal from two fire pits were found in association with the remains of nine immature mammoths.

No further work in the San Pedro River valley was undertaken until the 1970s. An amateur archaeologist, Herbert Reay, discovered the S-O Ranch site (AZ EE:12:37) in 1970. He dug into a cairn composed of metates and uncovered a burial. Additional excavations by Jeffery Adams (1974), a graduate student at Northern Arizona University, failed to locate other features. However, based on the types of artifacts recovered by Reay and Adams, Edward Sayles of the Arizona State Museum dated the site to the early Chiricahua stage of the Cochise culture.

The Smith Ranch site (AZ EE:12:39) was recorded by Diane Langston in 1987 as part of the Palominas Gate project. The site, which is on the western floodplain of the San Pedro River, appears to have been a village occupied late in the ceramic sequence, ca. A.D. 1300-1450.

#### PREVIOUS INVESTIGATIONS IN THE SULPHUR SPRINGS VALLEY

The Cochise culture was defined in 1926 as a result of the excavations at the Double Adobe Ruin on Whitewater Draw in southeastern Arizona (Sayles and Antevs 1941:12). The excavations uncovered the remains of late Pleistocene fauna in geological strata above artifacts. This confirmed the presence of *Homo sapiens* in the New World during the Pleistocene and prompted the research institute of Gila Pueblo to initiate further investigations in an attempt to

locate similar types of sites. The resulting surveys in the Sulphur Springs and San Pedro valleys were conducted by Emil Haury, E. B. Sayles, and E. Antevs. The most promising sites were then excavated (Sayles and Antevs 1941). The culture was named after the county in which the sites were located, which, in turn, had been named for Cochise, the famous Apache chieftain (Sayles and Antevs 1941:9).

Additionally, the Gila Pueblo surveys gave rise to the belief that the basic culture in the Sulphur Springs Valley from A.D. 800-1200 was Mogollon with a strong Hohokam influence (Gladwin and Gladwin 1935). In contrast, Fulton and Tuthill (1940) of the Amerind Foundation concluded from the Gleeson site excavations that the basic culture in the area at that time was Hohokam, with little more than a veneer of Mogollon influence. Fulton and Tuthill defined the Dragoon phase of the Hohokam, a culture that arose from local stock and was later assimilated into the Hohokam culture.

It was not until 30 years later, between 1978 and 1985, that approximately 10 percent of the Christiansen Border Village (AZ FF:9:10) was excavated by the Cochise County Historical and Archaeological Society. An informal report was completed by John Kurdeka (1985), the society chairman. Kurdeka concluded that subsistence practices conducted at this village were focused primarily on wild resources. The site may have been occupied over a considerable period of time.

#### **PREVIOUS INVESTIGATIONS IN THE SAN BERNARDINO VALLEY**

Generalized surveys have recorded several sites in the San Bernardino Valley. Animas phase sites were examined in the late 1920s by Monroe Amsden as part of a reconnaissance survey of Sonora, Mexico. In his initial publication, Amsden (1928) discussed a site just across the border on the Sonoran side of the San Bernardino Valley. He later recorded four sites on both sides of the border for Gila Pueblo (Gladwin and Gladwin 1935). Because of ceramic differences, Amsden (1928:44-45) divided Sonoran sites into two groups: one a peripheral development of the Casas Grandes culture and the other of the Chihuahua culture.

In 1928, Carl Sauer and Donald Brand (1930) studied pueblo sites in southeastern Arizona and recorded three sites in the San Bernardino Valley, two north and one south of the International Border. Based on examinations of these and other sites they also concluded that the International Border area was on the periphery of the Chihuahuan culture.

Modern systematic survey has been restricted predominantly to the U.S. side of the International Border, particularly the San Bernardino Land Grant area. Stacy (1974) conducted the first survey on the property and recorded 14 sites. An intensive survey on the 131-acre parcel of land surrounding the Slaughter Ranch House was conducted by Stone and Ayres (1982). In 1984-1985, the Arizona State Museum intensively surveyed 2,000 acres of the San Bernardino Land Grant, now a U.S. Fish and Wildlife Refuge, recording 33 sites ranging in age from Archaic through Historic periods (Neily and Beckwith 1985).

Survey outside the land grant has been limited. One survey was conducted by Sharon Urban, during which she recorded an Archaic period site, in 1978. The San Bernardino Valley Survey, which systematically examined 6.6 sq mi (4,224 acres), was undertaken by the Anthropological Resource Center at Cochise College, and although some Archaic and ceramic

sites were recorded, a majority of the sites exhibited evidence of occupation during the Encinas phase, A.D. 900-1175 (Douglas and Brown 1984; 1985:45).

Casually discovered sites have been recorded by professional archaeologists, staff members of the Anthropological Resource Center at Cochise College, ranchers, Forest Service personnel, and others. Some of these sites have published references. Sayles (1983:61) recorded several Archaic period sites in the San Bernardino Valley, and the San Bernardino Presidio was mapped and surface-collected by Gerald (1968). Paleo-Indian projectile points collected by nonprofessionals have been reported in the San Bernardino Valley. Myers (1976), who reported a projectile point from the Rising site, suggested it is morphologically similar to those of the Folsom culture. However, Agenbroad (1967:118) and Huckell (1982:19) argued that, based on the flaking style and the known distribution of Folsom sites, it is a resharpened Clovis point. The second Paleo-Indian point from the valley may also be a resharpened Clovis point (Huckell 1982:11).

A few sites have been excavated in the San Bernardino Valley, but the results of only one excavation have been published. One of the excavations about which nothing has been published took place at the Malpai Ranch site (AZ FF:11:17) where Archaic period remains were exposed in an arroyo cut. The site is thought to have San Pedro and Chiricahua phase materials, but based on the presence of extinct mammal remains, it could contain Sulphur Spring phase materials as well. Several burials reportedly have been removed from the Malpai Ranch site. Two pueblo sites have been excavated by the Anthropological Resource Center at Cochise College. The Bernardino site, excavated in the early 1970s, is a medium-sized adobe pueblo. A report of this excavation by the principal investigator, Richard Myers, has yet to be completed. The Boss Ranch site, a medium-sized pueblo close to the Bernardino site, is presently being excavated as part of the Cochise College excavation course. Jack and Vera Mills (1971), "amateur archeologists with professional standards" (Johnson and Thompson 1963:475), published the results of their excavations at the Slaughter Ranch site.

## CULTURAL HISTORY

### The Paleo-Indian Period

The date of the arrival of the first human populations in southern Arizona is still a matter of debate. There are those who contend that successive migrations occurred throughout the latter part of the Pleistocene. These migrations coincided with global temperature drops that resulted in large quantities of water being frozen. As the ice caps increased in size, sea levels dropped, forming land bridges in areas where the water had been most shallow. One of these land bridges connected Alaska with Siberia across the Bering Strait. Over the last 100,000 years, this land bridge has appeared and disappeared as temperatures fluctuated, and it is believed that this route was taken by migrating populations.

Sites resulting from these early inhabitants' presence in the New World, those occupied prior to 12,000 years ago, most frequently have been reported in the deserts of southern California. Early population sites have been reported for ancient Lake Mannix, China Lake, Calico, and the Yuha Desert in California (Davis 1978; Davis *et al.* 1981; Schuiling 1972), and the Sierra Pinacate region in nearby Sonora, Mexico (Hayden 1976). Arguments for the great antiquity of these sites have been based on the association of surface artifacts with geologic features, such as dry lake beds. Other arguments have considered the formation rate of desert varnish,

while still others have contended that crudely worked rocks of clear antiquity are artifacts rather than geofacts. Efforts to establish temporal control for desert varnish have focused on cation-ratio (Dorn 1989), and more recently, have attempted to radiocarbon date the organic inclusions trapped in pockets under rock varnish (Dorn 1992).

At present, no claims for human populations in southern Arizona predating about 12,000 years ago have met the scrutiny of the scientific community. Just as the evidence for inhabitants prior to 10,000 B.C. is tenuous, the evidence after that time period is secure. The earliest materials identified have been termed Paleo-Indian (Sellards 1952). Hallmarks of this tradition are large, fluted points used to hunt Pleistocene megafauna. Southern Arizona is home to a majority of the best known Paleo-Indian sites in the Southwest. Most of these sites are named after a site near Clovis, New Mexico. Clovis sites are recognized by the presence of a particular style of fluted projectile point, which is thought to have been used for hunting mammoth, mastodon, and camel. To a certain extent, this view is probably biased, because most Clovis sites that have been excavated are kill sites. Plant gathering and processing were, no doubt, an important aspect of Paleo-Indian economies.

Central to any review of the Paleo-Indian period are the sites in the San Pedro and Sulphur Springs valleys. Currently, there are four well-documented (i.e., Naco, Murray Springs, Lehner, and Escapule) and two possible stratified (i.e., Leikam and Navarette) Clovis sites, where extinct mammal bones were found in association with human artifacts (Haynes 1984:348-349). All six sites rest on an erosional surface dated to 10,900 B.P. by 23 charcoal samples. The occupational surface, in turn, is buried by a black mat composed of clayey-silt that dates to 10,800 B.P. In five other areas in the San Pedro Valley, the remains of extinct fauna are found beneath the black mat but without human remains. Haynes (1984:349) interpreted this situation as follows:

Before the black mat was deposited, the tributary streams at the Clovis sites were spring fed and probably perennial. During the brief interval of Clovis activity they may have nearly dried up, causing animals to concentrate at springs and seeps. Earlier, between 26,000-12,000 B.P., many tributary valleys were occupied by ponds or lakes, some spring fed, around which the Rancholabrean fauna was expected to attract early hunters, but despite careful excavation at three vertebrate fossil localities and periodic examination of others, these older deposits, in the process of eroding, have not yielded artifacts.

### The Archaic Period

The cultural remains of Archaic period people, post-Pleistocene foragers, are less rare than those of the Paleo-Indian groups. The cultural affiliation and age of Archaic materials in southern Arizona are not well-understood. Two Archaic traditions have been proposed for southern Arizona: Amargosa (also called San Dieguito II and III) and the Cochise culture. Haury (1950) argued that the Papagueria was the zone of contact between the Cochise culture (distributed primarily in southeastern/south central Arizona and New Mexico) and the Amargosa tradition (the remains of which have been recorded in southern California [Hester 1973; King 1976; Rogers 1939] and southwestern Arizona [Haury 1950; Hayden 1970; Rogers 1941; Rosenthal *et al.* 1978]). Other researchers have disagreed with Haury, contending that the Amargosan tradition is a pan-Southwestern occurrence extending from California to the trans-Pecos region in Texas (Hayden and Andretta, personal communication 1992).



### *The Mogollon Culture*

The Mogollon culture evolved from the Cochise culture. The earliest Mogollon villages appear to be little more than Late Archaic villages with pottery (Sayles 1945:14). The hallmarks of this stage are horticulture, red-on-brown pottery, and pithouses. Southeastern Arizona has been included in the San Simon Branch of the Mogollon (Sayles 1945:14), which has been divided into three periods and six phases. The Early period consists only of the Peñasco phase, which was derived from the San Pedro stage of the Cochise culture. In essence, the only difference between the San Pedro stage and the Peñasco phase is the addition of plainware and red-slipped pottery. Following this is an Intermediate period composed of the Dos Cabezas, Pinaleno, and Galiuro phases, which are defined by the introduction of decorated ceramics. The Late period, composed of the Cerros and Encinas phases, exhibits considerable influence from the Hohokam to the northwest and the Mimbres Mogollon to the east (Sayles 1945). Dates for these phases are not clear (Masse 1982), but the whole sequence probably ranges from about A.D. 200 to 1200. Crossdating with Hohokam artifact types suggests that the Intermediate period may have originated at about the same time that decorated wares show up in the Hohokam areas. Sacaton Red-on-buff is often found in Encinas phase contexts.

The transitional nature of the San Simon Branch challenges the tidy separation between the Hohokam and Mogollon sequences. This time period in southeastern Arizona has been given alternative names. "Dragoon culture" was preferred by early workers at the Amerind Foundation and by Masse (1982:89). Because the term "Mogollon" appears to be sufficiently broad in its present usage to cover this period in the San Pedro, Sulphur Springs, and San Bernardino valleys, and because it is associated with a particular reconstruction of the culture history of the region, it is applicable for this study.

### *The Pueblo Culture*

The appearance of rock and adobe pueblos in the southern part of the Southwest has sparked interest and research, but little information to explain the significance of this period. It is generally believed that the pattern originated in the Mimbres branch. While this period has been labeled Pueblo, in contrast to the earlier Mogollon, this is not meant to imply a discontinuity in cultural development. Rather, it is reasonable to assume that it also is of the Mogollon culture (Johnson and Thompson 1963). The term Mogollon is used here in the way Sayles (1945) defined the San Simon Branch, simply to avoid a phrase such as "the pithouse period Mogollon." Three traditions are important for the study of the pueblo villages in the project area.

### The Ringo Phase

One of the traditions in the Sulphur Springs Valley is the Ringo phase (Johnson and Thompson 1963). Unfortunately, it is known from only a single excavation. The Ringo site, from which a wide variety of ceramic trade wares was recovered, consists of two small adobe compounds with 27 rooms. The ceramic assemblage suggests contact with four areas: Chihuahua (over 25 percent of the decorated wares), the White Mountain area, the Tonto Basin (these ceramics could have been locally made), and the Tucson Basin (Johnson and Thompson 1963:478). The site is thought to date between A.D. 1250 and 1325 (Johnson and Thompson 1963:479). The Ringo phase has been interpreted as basically Mogollon, with outside cultural influences, probably from the Anasazi to the north and/or, possibly, from cultures inhabiting the Chihuahuan area to the south (Johnson and Thompson 1963:476).

### The Animas Phase

The Animas phase, best known from Hidalgo County, New Mexico, is relevant to this study because the type site, the Pendleton Ruin, is less than 15 km (9 mi) from the San Bernardino Valley (Kidder *et al.* 1949). This phase has generally been interpreted very differently from the Ringo phase even though the two overlap temporally. The dating of the Animas phase to ca. A.D. 1175 to 1350 and the presence of Ramos Polychrome and other Casas Grandes pottery types imply an association with Casas Grandes. Unlike the Ringo site, a number of Animas pueblo sites are much larger, falling in the 100- to 300-room category. The nature of the association between the Animas phase and Casas Grandes has been debated for the last 30 years. Kidder and others (1949) argued that the traits found at the Pendleton Ruin were quite distinct from those at Casas Grandes. More recent researchers have accepted the Animas phase as lying on the periphery of Casas Grandes but directly interacting with the core area (DeAtley and Findlow 1980; LeBlanc 1980). These authors viewed the Animas phase as non-Mogollon. In fact, LeBlanc (1980) specifically suggested a population movement from the south into the Mimbres valley that absorbed the remaining indigenous populations. Others remain unconvinced of a Casas Grandes expansion into southwestern New Mexico, pointing out that the five excavated Animas phase sites, the few available dates, and the published survey data collected by Findlow and DeAtley, are simply not enough data for such a conclusion (Stuart and Gauthier 1981).

The term Animas phase has not been generally applied in southeastern Arizona. Nevertheless, the great similarities in ceramic types and their frequencies, architectural features, burial patterns, and projectile point types between most of the pueblo sites in the project area and Animas phase sites in southwestern New Mexico suggest that they are part of the same cultural tradition (Amsden 1928; Kidder *et al.* 1949; McCluney 1962; Neily and Beckwith 1985; Sauer and Brand 1930). One prominent similarity is the presence of Cloverdale Corrugated, a pottery type common in the local and New Mexico Animas phase sites. Cloverdale Corrugated, a polished redware displaying triangular indentations, has a narrow geographical distribution (Kidder *et al.* 1949; Riggs, personal communication 1991).

The pueblo sites in the project area display other similarities to Animas phase sites in southwestern New Mexico. Pottery types that are generally associated with Animas sites are found locally, such as Playas Red, Chupadero Black-on-white, St. John's Polychrome, El Paso Polychrome, Casas Grandes polychromes, Tucson Polychrome, and Salado polychromes (LeBlanc and Whalen 1980:273; Neily and Beckwith 1985:50). Pueblo structures are of adobe

and are arranged in compounds that are often open on one side. Kivas are not present. The Boss Ranch site contains a subfloor, flexed burial that is similar to some Animas burials (LeBlanc and Whalen 1980:280). Further, a radiocarbon date of A.D. 1250-1430 (Klein *et al.* 1982) from the Boss Ranch site fits comfortably within the temporal range of Animas sites in New Mexico (DeAtley 1980).

It must be noted that there are differences between assemblages within the project area and Animas phase sites, even though considerable regional variation has been noted elsewhere (LeBlanc and Whalen 1980). In particular, the Slaughter Ranch site is anomalous. It exhibited equal amounts of Salado and Casas Grandes wares; secondary cremations were the most common mode of burial; and the rooms are fairly small (9.2 m<sup>2</sup>). The site has too much Salado pottery to fit neatly into the Animas phase. However, if the Salado period is later than the Animas phase, which is generally assumed to be the case, then the Slaughter Ranch site may be representative of a transitional period between the two phases.

The Boss Ranch site also exhibits differences from Animas phase sites. At the Boss Ranch site there are more Sonoran and southeastern Arizona ceramic types, such as Tanque Verde Red-on-brown and Santa Cruz Polychrome, than at Hidalgo County, New Mexico, sites. In this regard, the site displays similarities with the Ringo site, which is not surprising given its location. The relationship between the Ringo and Animas phases is not clearly understood.

#### The Salado Phase

The third pueblo phase in the area that must be considered is the Salado, which is identified by its associated ceramic types of Pinto, Gila, and Tonto Polychromes. In both the Sulphur Springs Valley and southwestern New Mexico, this culture is generally dated from A.D. 1300 to 1450 (LeBlanc 1980). The Salado habitation sites are situated at lower elevations and are massive, multistoried pueblos that are different in appearance and setting from sites in either the Ringo or Animas phases (Johnson and Thompson 1963; LeBlanc 1980). Traditionally, the view has been that the Salado were an intrusive people from the Tonto Basin in Arizona; however, this view is no longer widely accepted. Nonetheless, recent interpretations of the Salado culture have been formulated for the Hohokam area and may not be applicable to the study area.

#### The Protohistoric Period

The abandonment of the large, aggregated pueblos in the Southwest around A.D. 1450 marks the beginning of the Protohistoric period, which is very poorly understood. Based on crossdating with Hohokam and Salado ceramics, DiPeso concluded that the inhabitants of Babocomari Village in the San Pedro Valley moved into the area at a time roughly contemporaneous with the Tucson phase, ca. A.D. 1200-1450. It is possible that abandonment occurred quite late, perhaps during Apache times (DiPeso 1951:221-222). If this is the case, then Babocomari Village represents the only large protohistoric site excavated to date.

By the time the Spanish arrived, the major native populations were living in rancherias dispersed along major watercourses. The cultural groups in the project area are difficult to assess. The Opatá, a Uto-Aztecan speaking group occupying much of northeastern Sonora, are known to have inhabited the southern part of the valleys, but the Spanish did not record any of their villages north of the International Border. The Jano and Jocome lived in nomadic bands

and ranged through the area where Sonora, Chihuahua, and the International Border converge, which includes the southern part of the San Bernardino Valley. In general, the Opata, Janos, and Jocomé suffered such rapid population decline and assimilation after Spanish contact that few data are available to indicate how these cultures could be identified in the project area.

### The Historic Period

The Historic period in the project area began with the Spanish explorations of Fray Marcos de Niza in 1539 and Francisco Vasquez de Coronado in 1540. Sporadic Spanish contact continued until 1687 when Eusebio Kino, a Jesuit priest, entered the region. Over the next 24 years, Padre Kino embarked on at least 50 major journeys traveling as far east as the Quiburi rancheria on the San Pedro River. During his travels, he established a chain of missions and branch missions (or visitas) and encountered many rancherias. An influx of Spanish missionaries, explorers, miners, ranchers, and settlers followed Kino until the outbreak of Apache raiding in 1703. At that time, Kino suggested to Spanish authorities that a mission with a defensive fortification be established on the San Pedro River and the Sobaipuri Pima Indians be employed as allies. Kino's request was denied.

After Kino's death in 1711, little support was given to the Spanish missionaries until the 1730s when German priests were assigned to the missions. However, by the 1770s, the constant Apache attacks had contributed to the near-abandonment of the entire San Pedro Valley. In an attempt to make the valley safe, the presidios of Terrenate and Fronteras were moved north to Quiburi and the San Bernardino Valley, respectively. However, the Indian attacks intensified and became so severe that Fronteras and Terrenate were moved back to Sonora, Mexico (Wagoner 1975).

In early 1830 during a period of lessened Apache raids, Lieutenant Perez, a member of one of the most prominent land-holding families in Sonora, petitioned the government for a land grant located between the existing settlements in Sonora and the Apaches (Wells 1985). Upon approval, he was permitted to purchase four sitios, with related "overplus" for a total of almost 100,000 acres, for 90 pesos plus fees. He named the site El Rancho de San Bernardino. But by the late 1830s, Apache raiding had begun again, forcing the abandonment of the rancho.

During and after the war with Mexico (1846-1848), a period of time in which California and the Southwest were opened to Anglo-Americans, thousands of travelers along the southern Gila route passed through the San Bernardino Valley, where they stopped at pools fed from perennial springs. The springs would have attracted wild beef (descendants from the early Spanish cattle herds that were running wild in the area), which would have been a significant meat source for the immigrants (Wells 1985).

The Gadsden Purchase was established in 1854, but it was not until 1856 that the land left Mexican domain and came under the rule of the United States. At that time much of the land held through Mexican and Spanish land grants promptly fell into contention.

"Gold," in the forms of both mineral and grasslands, was discovered in the Arizona Territory and California. This brought an influx of settlers and a need for military protection from the Indian raiders. Several forts were established in southern Arizona and troops were stationed in the San Bernardino Valley at Silver Creek, Guadalupe Canyon and, for a brief time in 1878, at Camp Supply, just north of the International Border (Wells 1985).

By 1884, El Rancho de San Bernardino, the old Mexican land grant, had been deserted for almost 50 years. At that time it consisted of approximately 65,000 acres of grasslands, watered by a number of streams and springs. It was purchased by John Slaughter, a former Cochise County sheriff, and his wife Viola. By then the once large, fortified hacienda was a crumbling ruin just south of the unfenced International Border (Wells 1985). Slaughter built two adobe houses on the site, one for his in-laws and the other for himself. He and Viola also maintained a Tombstone home so that their children could attend school.

The Apaches continued raiding in the San Pedro Valley until 1884, when Col. George Crook forced them onto the San Carlos Reservation. He reported that "for the first time in the history of that fierce people, every member of the Apache tribe is at peace" (Wells 1985). However, peace was short-lived. In 1885, a large number of Apaches fled the reservation and left a bloody trail crisscrossing southeast Arizona and southwest New Mexico. Finally, in 1886, Geronimo surrendered to General Crook at Cañon de los Embudos in the mountains 48 km (30 mi) south of the San Bernardino Ranch headquarters.

The San Pedro River Valley became a profitable cattle ranching area after the turn of the century. In 1899, it was little more than an uninhabited cattle holding ground; 10 years later, it was a bustling population center of more than 10,000 people. Douglas, a smelter city on the border, was founded at this time as well. Its beginning, planning, and development were due primarily to Dr. James Douglas (Hadley 1987). In 1881, the Phelps Dodge Company assigned Dr. Douglas to its Copper Queen mine and smelter in Bisbee, Arizona. There he expanded the Phelps Dodge operation and purchased the Pilares mine at Nacozari, 120 km (75 mi) south of the border in Sonora. It became evident that the increased production in the Bisbee mine and the addition of the Nacozari mine necessitated a larger smelter than the one at Bisbee. Since smelters require large amounts of water, the former cattle-holding ground at Whitewater Draw, 40 km (25 mi) southeast of Bisbee, looked promising. In 1890, the Phelps Dodge Company acquired some land under scrip while other land was procured from the International Improvement Company for the smelter in the valley. Whitewater Draw also provided an ideal connecting point for the Nacozari and Bisbee railroads, since ore trains from both mines would be traveling downgrade. The southeastward railroad extension from Bisbee had reached Douglas by 1900 and Nacozari via Naco by 1904 (Hadley 1987). Railroad construction workers initiated small settlements in the area where Douglas and Agua Prieta now stand.

Soon after Dr. Douglas selected the Whitewater Draw site for the new smelter, investors and speculators became eager to share in the enormous profits to be made from the town's construction. While the Phelps Dodge Company owned a substantial amount of property, the intention was not to make Douglas a "company town." Many homes and most of the businesses were to be privately owned. The International Land and Improvement Company, which Dr. Douglas and his friends incorporated, added directors who planned and laid out the Douglas town site, set the real estate prices, built large commercial projects, and provided the town with utilities (Hadley 1987).

In 1901, workers arrived from Bisbee and began construction of the smelters. In 1902 the Calumet & Arizona smelter began producing; by 1904, the Copper Queen Furnace Number One was completed. The boom had begun. After only three years, Douglas ranked fourth in population in the territory and was called the "Wonder City of the West" (Hadley 1987:12). Aside from mining, the commercial interests of Douglas centered on the railroad, the

surrounding rural area of ranches and farms, and border trade. By 1903, daily rail service to Douglas was offered by 19 freight trains and 12 passenger trains. The high economic point for Douglas occurred during World War I. Copper bars, indispensable to the war effort, poured out of both smelters. However, as soon as the war ended, the demand for copper dropped, and by 1929, the boom was over.

The U.S.-Mexican border became a focal point in 1910 during the Mexican Revolution, serving as a source for contraband, recruitment, and escape. For the first time in U.S. history, American soldiers were stationed along the border at Nogales, Naco, and Douglas. Approximately 100 men were assigned the task of patrolling the border between Douglas and the San Pedro River. Fifty men camped near the stockyards in Douglas, and another 50 camped at Naco (Christiansen 1974). In 1911, the number of men at Douglas increased by 50; 10 others established an outpost on the Slaughter Ranch. The cavalry and infantrymen at the Slaughter Ranch outpost came from the camp at Douglas, which in 1916 was named Camp Harry J. Jones, after a soldier who had been killed. During the Pancho Villa scare in 1915-1916, troop strength varied from ten-man detachments to 600 men and three machine guns (Christiansen 1974). However, both Camp Harry J. Jones and the camp at Slaughter Ranch were closed in 1933.

During the course of the border strife in March 1911, the U.S. Cavalry was deployed along the border to prevent American spectators from crossing into Mexico (Christiansen 1974). Instead, the spectators stood on the streets and roof tops in Douglas to watch the action. There was so much shooting in Agua Prieta that the U.S. Cavalry warned the Mexican Federales and the rebels to stop firing into the U.S. The armies were, of course, not able to comply, and many buildings were struck, and several U.S. citizens were killed.

In 1916, airplanes were used to patrol the border between El Paso and Douglas, and Douglas became the site of the first operational military air field. The border was quiet by 1921, and the air field was abandoned in 1926. Then, in 1929, the Escobar rebellion again created the need for air patrol along the border. The Mexican government enlisted the aid of U.S. planes and pilots. The U.S. provided two armed planes that flew dawn-to-dusk patrols. No incidents occurred until a careless insurgent pilot dropped two home-made bombs near Naco, Arizona, and a third on the town. The latter broke windows and injured several bystanders. Seven days later, a pilot flying for the Escobaristas attempted to drop a bomb on the Mexican federal trenches. However, his bomb fell on the American side without damage.

## *The Cochise Culture*

The Cochise culture originally was defined by Sayles and Antevs (1941) following the excavations of preceramic sites along major stream channels in southeastern Arizona (Whitewater Draw, San Pedro River, and San Simon Creek). These and other investigations (Cattanach 1966; Sayles *et al.* 1958) demonstrated that Cochise groups utilized the floodplain environmental zone. Whalen (1971, 1975) conducted a systematic survey of a 100-square mile section of the upper San Pedro Valley, locating 84 Cochise sites situated on three landform types: terraces, upper pediments, and mountains. These data indicate that Cochise groups exploited a wide range of different environmental zones. Generally, three Cochise culture stages are recognized: Sulphur Springs, Chiricahua, and San Pedro (Sayles and Antevs 1941).

### Sulphur Springs Stage

The Sulphur Springs stage is considered a specialized Paleo-Indian adaptation and is known only from a few sites near Double Adobe in southeastern Arizona (Whalen 1971:74-87). Sayles and Antevs (1941) describe the phase as consisting of ground stone and a limited amount of flaked stone associated with extinct Pleistocene fauna. This phase dates from approximately 7,500-3,500 B.C. on the basis of nine radiocarbon dates (Whalen 1971:67, 69).

### The Chiricahua Stage

The next Cochise stage, Chiricahua, dated by Whalen (1975:205) from 3,500-1,500 B.C., marks the beginning of the Archaic period in southern Arizona. The Chiricahua tool assemblage contains ground stone in the form of small, shaped and unshaped handstones, shallow basin metates, mortars, "proto-pestles," and flaked stone in the form of unifacial handaxes, knives, scrapers, spokeshaves, and utilized flakes (Sayles *et al.* 1958:101-102). The flaked stone exhibits primarily percussion flaking with some pressure flaking, particularly noted among projectile point assemblages. Three types of projectile points are known: (1) triangular side-notched with indented base, (2) stemmed, and (3) leaf-shaped (Sayles *et al.* 1958). Several researchers contend that maize and squash were introduced during the Chiricahua stage (Dick 1952:105; Martin and Schoenwetter 1960:33-34).

### The San Pedro Stage

The San Pedro stage tentatively dates from 1,500 B.C. to A.D. 100 (Whalen 1975:205). Listed among the material culture inventory are deep-basin metates, shaped pestles, mortars, two-hand manos, and an increase in the types and numbers of pressure-flaked tools (Sayles *et al.* 1958:111-112). Pithouses and storage features, domesticates (beans, maize, and squash), and pottery appear at the end of the San Pedro stage (Dick 1965; Eddy 1958; Martin *et al.* 1949; Sayles 1945).

## The Formative Period

The Formative period refers to the presence of ceramic-making, horticulture people in southern Arizona. Ignoring cultures peripheral to the study area (such as the Hohokam, Trincheras, and Chihuahuan), a simplified cultural sequence for the Formative period in southeastern Arizona and southwestern New Mexico includes the Mogollon and the Pueblo.

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# **APPENDIX C**

## **Section 404 Permit Information**

## Appendix C

### Specifics Requirements for Nationwide Permits 14 AND 26, General Conditions, and Section 404 Only Permits

#### **Nationwide Permit 14 Road Crossings**

Fills for roads crossing waters of the U.S. (including wetlands and other special aquatic sites) provided the activity meets all of the following criteria:

- a. The width of the fill is limited to the minimum necessary for the actual crossing;
- b. The fill placed in waters of the U.S. is limited to a filled area of no more than 1/3 acre (ac). Furthermore, no more than a total of 200 linear feet (ft) of the fill for the roadway can occur in special aquatic sites, including wetlands;
- c. The crossing is culverted, bridged or otherwise designed to prevent the restriction of, and to withstand, expected high flows and tidal flows, and to prevent the restriction of low flows and the movement of aquatic organisms;
- d. The crossing, including all attendant features, both temporary and permanent, is part of a single and complete project for crossing of a water of the U.S.; and,
- e. For fills in special aquatic sites, including wetlands, the permittee notifies the District Engineer in accordance with the "Notification" general condition. The notification must also include a delineation of affected special aquatic sites, including wetlands.

This Nationwide (NWP) may not be combined with NWP 18 or NWP 26 for the purpose of increasing the footprint of the road crossing. Some road fills may be eligible for an exemption from the need for a Section 404 permit altogether (see 33 Code of Federal Regulations [CFR] 323.4). Also, where local circumstances indicate the need, District Engineers will define the term "expected high flows" for the purpose of establishing applicability of this NWP (Sections 10 and 404).

#### **Nationwide Permit 26 Headwaters and Isolated Waters Discharges**

NWP 26 authorizes the discharges of dredged or fill material into headwaters and isolated waters provided that the activity meets all of the following criteria:

- a. The discharge does not cause the loss of more than 3 ac of waters of the U.S. nor cause the loss of waters of the U.S. for a distance greater than 500 linear ft of the stream bed;
- b. For discharges causing the loss of greater than 1/3 ac of waters of the U.S., the permittee notifies the District Engineer in accordance with the "Notification" general condition;

c. For discharges causing a loss of 1/3 ac or less of waters of the U.S. the permittee must submit a report within 30 days of completion of the work, containing the information listed below;

d. For discharges in special aquatic sites, including wetlands, the notification must also include a delineation of affected special aquatic sites, including wetlands (also see 33 CFR 330.1(e)); and

e. The discharge, including all attendant features, both temporary and permanent, is part of a single and complete project. Note, this NWP will expire on February 11, 1999.

For the purposes of this NWP, the acreage of loss of waters of the U.S. includes the filled area plus waters of the U.S. that are adversely affected by flooding, excavation or drainage as a result of the project. The 3 ac and 1/3 ac limits of NWP 26 are absolute, and cannot be increased by any mitigation plan offered by the applicant or required by the District Engineer. Whenever any other NWP is used in conjunction with this NWP, the total acreage of impacts to waters of the U.S. of all NWPs combined, can not exceed 3 ac.

For discharges causing the loss of 1/3 ac or less of waters of the U.S., the permittee must submit a report within 30 days of completion of the work, containing the following information:

(a) Name, address, and telephone number of the permittee;

(b) Location of the work;

(c) Description of the work; and,

(d) Type and acreage (or square feet [ft<sup>2</sup>]) of the loss of waters of the U.S. (e.g., 1/10 ac of marsh and 50 ft<sup>2</sup> of a stream).

### **General Conditions**

The following general conditions must be followed in order for any authorization by a NWP to be valid:

1. Navigation: No activity may cause more than a minimal adverse effect on navigation.

2. Proper Maintenance: Any structure or fill authorized shall be properly maintained, including maintenance to ensure public safety.

3. Erosion and Siltation Controls: Appropriate erosion and siltation controls must be used and maintained in effective operating condition during construction, and all exposed soil and other fills, as well as any work below the ordinary high water mark or high tide line, must be permanently stabilized at the earliest practicable date.

4. Aquatic Life Movements: No activity may substantially disrupt the movement of those species of aquatic life indigenous to the waterbody, including those species which normally migrate through the area, unless the activity's primary purpose is to impound water.

5. Equipment: Heavy equipment working in wetlands must be placed on mats, or other measures must be taken to minimize soil disturbance.

6. Regional and Case-by-Case Conditions: The activity must comply with any regional conditions which may have been added by the Division Engineer (see 33 CFR 330.4(e)) and with any case specific conditions added by the U.S. Army Corps of Engineers (USACE) or by the state or tribe in its Section 401 water quality certification.

7. Wild and Scenic Rivers: No activity may occur in a component of the National Wild and Scenic River System; or in a river officially designated by Congress as a "study river" for possible inclusion in the system, while the river is in an official study status; unless the appropriate federal agency, with direct management responsibility for such river, has determined in writing that the proposed activity will not adversely effect the Wild and Scenic River designation, or study status. Information on Wild and Scenic Rivers may be obtained from the appropriate federal land management agency in the area (e.g., National Park Service [NPS], U.S. Forest Service [USFS], Bureau of Land Management [BLM], U.S. Fish and Wildlife Service [USFWS]).

8. Tribal Rights: No activity or its operation may impair reserved tribal rights, including, but not limited to, reserved water rights and treaty fishing and hunting rights.

9. Water Quality Certification: In certain states, an individual Section 401 water quality certification must be obtained or waived (see 33 CFR 330.4(c)).

10. Coastal Zone Management: In certain states, an individual state coastal zone management consistency concurrence must be obtained or waived (see Section 330.4(d)).

11. Endangered Species: (a) No activity is authorized under any NWP which is likely to jeopardize the continued existence of a threatened or endangered species or a species proposed for such designation, as identified under the federal Endangered Species Act (ESA), or which is likely to destroy or adversely modify the critical habitat of such species. Non-federal permittees shall notify the District Engineer if any listed species or critical habitat might be affected or is in the vicinity of the project, and shall not begin work on the activity until notified by the District Engineer that the requirements of the Endangered Species Act have been satisfied and that the activity is authorized.

(b) Authorization of an activity by a nationwide permit does not authorize the "take" of a threatened or endangered species as defined under the Federal Endangered Species Act. In the absence of separate authorization (e.g., an ESA Section 10 Permit, a Biological Opinion with "incidental take" provisions, etc.) from the USFWS or the National Marine Fisheries



Service (NMFS), both lethal and non-lethal “takes” of protected species are in violation of the ESA. Information on the location of threatened and endangered species and their critical habitat can be obtained directly from the offices of the USFWS and NMFS or their world wide web pages at <http://www.fws.gov> and <http://kingfish.spp.nmfs.gov>, respectively.

12. Historic Properties: No activity which may affect historic properties listed, or eligible for listing, in the National Register of Historic Places (NRHP) is authorized, until the District Engineer has complied with the provisions of 33 CFR Part 325, Appendix C. The prospective permittee must notify the District Engineer if the authorized activity may affect any historic properties listed, determined to be eligible, or which the prospective permittee has reason to believe may be eligible for listing on the NRHP, and shall not begin the activity until notified by the District Engineer that the requirements of the National Historic Preservation Act (NHPA) have been satisfied and that the activity is authorized. Information on the location and existence of historic resources can be obtained from the State Historic Preservation Office (SHPO) and the NRHP (see 33 CFR 330.4(g)).

13. Notification:

(a) Timing: Where required by the terms of the NWP, the prospective permittee must notify the District Engineer with a Pre-Construction Notification (PCN) as early as possible and shall not begin the activity:

(1) Until notified by the District Engineer that the activity may proceed under the NWP with any special conditions imposed by the District or Division Engineer; or

(2) If notified by the District or Division Engineer that an individual permit is required; or

(3) Unless 30 days (or 45 days for NWP 26 only) have passed from the District Engineer's receipt of the notification and the prospective permittee has not received notice from the District or Division Engineer. Subsequently, the permittee's right to proceed under the NWP may be modified, suspended, or revoked only in accordance with the procedure set forth in 33 CFR 330.5(d)(2).

(b) Contents of Notification: The notification must be in writing and include the following information:

(1) Name, address and telephone numbers of the prospective permittee;

(2) Location of the proposed project;

(3) Brief description of the proposed project; the project's purpose; direct and indirect adverse environmental effects the project would cause; any other NWP(s), regional general permit(s) or individual permit(s) used or intended to be used to authorize any part of the proposed project or any related activity; and

(4) For NWP 14, 18, 21, 26, 29, 34, and 38, the PCN must also include a delineation of affected special aquatic sites, including wetlands (see paragraph 13(f));

(5) For NWP 21-Surface Coal Mining Activities, the PCN must include an Office of Surface Mining (OSM) or state approved mitigation plan.

(6) For NWP 29-Single-Family Housing, the PCN must also include:

(i) Any past use of this NWP by the individual permittee and/or the permittee's spouse;

(ii) A statement that the single-family housing activity is for a personal residence of the permittee;

(iii) A description of the entire parcel, including its size, and a delineation of wetlands. For the purpose of this NWP, parcels of land measuring 0.5 ac or less will not require a formal on-site delineation. However, the applicant shall provide an indication of where the wetlands are and the amount of wetlands that exists on the property. For parcels greater than 0.5 ac in size, a formal wetland delineation must be prepared in accordance with the current method required by the USACE. (see paragraph 13(f));

(iv) A written description of all land (including, if available, legal descriptions) owned by the prospective permittee and/or the prospective permittee's spouse, within a one mile radius of the parcel, in any form of ownership (including any land owned as a partner, corporation, joint tenant, co-tenant, or as a tenant-by-the-entirety) and any land on which a purchase and sale agreement or other contract for sale or purchase has been executed;

(7) For NWP 31-Maintenance of Existing Flood Control Projects, the prospective permittee must either notify the District Engineer with a PCN prior to each maintenance activity or submit a five year (or less) maintenance plan. In addition, the PCN must include all of the following:

(i) Sufficient baseline information so as to identify the approved channel depths and configurations and existing facilities. Minor deviations are authorized, provided that the approved flood control protection or drainage is not increased;

(ii) A delineation of any affected special aquatic sites, including wetlands; and,

(iii) Location of the dredged material disposal site.

(8) For NWP 33-Temporary Construction, Access, and Dewatering, the PCN must also include a restoration plan of reasonable measures to avoid and minimize adverse effects to aquatic resources.

(c) Form of Notification: The standard individual permit application form (Form ENG 4345) may be used as the notification but must clearly indicate that it is a PCN and must include all of the information required in (b) (1)-(7) of General Condition 13. A letter may also be used.

(d) District Engineer's Decision: In reviewing the PCN for the proposed activity, the District Engineer will determine whether the activity authorized by the NWP will result in more than minimal individual or cumulative adverse environmental effects or may be contrary to the public interest. The prospective permittee may, optionally, submit a proposed mitigation plan with the PCN to expedite the process and the District Engineer will consider any optional mitigation the applicant has included in the proposal in determining whether the net adverse environmental effects of the proposed work are minimal. If the District Engineer determines that the activity complies with the terms and conditions of the NWP and that the adverse effects are minimal, the District Engineer will notify the permittee and include any conditions the District Engineer deems necessary.

Any mitigation proposal must be approved by the District Engineer prior to commencing work. If the prospective permittee elects to submit a mitigation plan, the District Engineer will expeditiously review the proposed mitigation plan, but will not commence a second 30-day (or 45-day for NWP 26) notification procedure. If the net adverse effects of the project (with the mitigation proposal) are determined by the District Engineer to be minimal, the District Engineer will provide a timely written response to the applicant stating that the project can proceed under the terms and conditions of the NWP.

If the District Engineer determines that the adverse effects of the proposed work are more than minimal, then he will notify the applicant either: (1) That the project does not qualify for authorization under the NWP and instruct the applicant on the procedures to seek authorization under an individual permit; (2) that the project is authorized under the NWP subject to the applicant's submitting a mitigation proposal that would reduce the adverse effects to the minimal level; or (3) that the project is authorized under the NWP with specific modifications or conditions.

(e) Agency Coordination: The District Engineer will consider any comments from federal and state agencies concerning the proposed activity's compliance with the terms and conditions of the NWPs and the need for mitigation to reduce the project's adverse environmental effects to a minimal level.

(i) For NWP 14, 21, 26 (between 1 and 3 ac of impact), 29, 33, 37, and 38, the District Engineer will, upon receipt of a notification, provide immediately, (e.g., facsimile transmission, overnight mail or other expeditious manner), a copy to the appropriate offices of the USFWS, State natural resource or water quality agency, Environmental Protection Agency (EPA), SHPO, and, if appropriate, the NMFS. With the exception of NWP 37, these agencies will then have five calendar days from the date the material is transmitted to telephone or fax the District Engineer notice that they intend to provide substantive, site-specific comments. If so contacted by an agency, the District Engineer will wait an

additional 10 calendar days (16 calendar days for NWP 26 PCNs) before making a decision on the notification. The District Engineer will fully consider agency comments received within the specified time frame, but will provide no response to the resource agency. The District Engineer will indicate in the administrative record associated with each notification that the resource agencies' concerns were considered. Applicants are encouraged to provide the USACE multiple copies of notifications to expedite agency notification.

(ii) Optional Agency Coordination: For NWPs 5, 7, 12, 13, 17, 18, 27, 31, and 34, where a Regional Administrator of EPA, a Regional Director of USFWS, or a Regional Director of NMFS has formally requested general notification from the District Engineer for the activities covered by any of these NWPs, the USACE will provide the requesting agency with notification on the particular NWPs. However, where the agencies have a record of not generally submitting substantive comments on activities covered by any of these NWPs, the USACE district may discontinue providing notification to those regional agency offices. The District Engineer will coordinate with the resources agencies to identify which activities involving a PCN that the agencies will provide substantive comments to the USACE. The District Engineer may also request comments from the agencies on a case by case basis when the District Engineer determines that such comments would assist the USACE in reaching a decision whether effects are more than minimal either individually or cumulatively.

(iii) Optional Agency Coordination, Section 401 Denial: For NWP 26 only, where the state has denied its Section 401 water quality certification for activities with less than 1 ac of wetland impact, the EPA regional administrator may request agency coordination of PCNs between 1/3 and 1 ac. The request may only include acreage limitations within the 1/3 to 1 ac range for which the state has denied water quality certification. In cases where the EPA has requested coordination of projects as described here, the USACE will forward the PCN to EPA only. The PCN will then be forwarded to the USFWS and the NMFS by EPA under agreements among those agencies. Any agency receiving the PCN will be bound by the EPA time frames for providing comments to the USACE.

(f) Wetlands Delineations: Wetland delineations must be prepared in accordance with the current method required by the USACE. For NWP 29 see paragraph (b)(6)(iii) for parcels less than 0.5 ac in size. The permittee may ask the USACE to delineate the special aquatic site. There may be some delay if the USACE does the delineation. Furthermore, the 30-day period (45 days for NWP 26) will not start until the wetland delineation has been completed and submitted to the USACE, where appropriate.

(g) Mitigation: Factors that the District Engineer will consider when determining the acceptability of appropriate and practicable mitigation include, but are not limited to:

(i) To be practicable, the mitigation must be available and capable of being done considering costs, existing technology, and logistics in light of the overall project purposes;

(ii) To the extent appropriate, permittees should consider mitigation banking and other forms of mitigation including contributions to wetland trust funds, "in lieu fees" to organizations such as The Nature Conservancy, state or county natural resource management agencies, where such fees contribute to the restoration, creation, replacement, enhancement, or preservation of wetlands. Furthermore, examples of mitigation that may be appropriate and practicable include but are not limited to: reducing the size of the project; establishing wetland or upland buffer zones to protect aquatic resource values; and replacing the loss of aquatic resource values by creating, restoring, and enhancing similar functions and values. In addition, mitigation must address wetland impacts, such as functions and values, and cannot be simply used to offset the acreage of wetland losses that would occur in order to meet the acreage limits of some of the NWP's (e.g., for NWP 26, 5 ac of wetlands cannot be created to change a 6 ac loss of wetlands to a 1 ac loss; however, 2 created ac can be used to reduce the impacts of a 3 ac loss.).

14. Compliance Certification: Every permittee who has received a NWP verification from the USACE will submit a signed certification regarding the completed work and any required mitigation. The certification will be forwarded by the USACE with the authorization letter and will include: (a) statement that the authorized work was done in accordance with the USACE authorization, including any general or specific conditions; (b) statement that any required mitigation was completed in accordance with the permit conditions; and (c) signature of the permittee certifying the completion of the work and mitigation.

15. Multiple Use of NWP: In any case where any NWP number 12 through 40 is combined with any other NWP number 12 through 40, as part of a single and complete project, the permittee must notify the District Engineer in accordance with paragraphs a, b, and c on the "Notification" General Condition number 13. Any NWP number 1 through 11 may be combined with any other NWP without notification to the USACE, unless notification is otherwise required by the terms of the NWP's. As provided at 33 CFR 330.6(c) two or more different NWP's can be combined to authorize a single and complete project. However, the same NWP cannot be used more than once for a single and complete project.

#### **Section 404 Only Conditions**

In addition to the General Conditions, the following conditions apply only to activities that involve the discharge of dredged or fill material into waters of the U.S., and must be followed in order for authorization by the NWP's to be valid:

1. Water Supply Intakes: No discharge of dredged or fill material may occur in the proximity of a public water supply intake except where the discharge is for repair of the public water supply intake structures or adjacent bank stabilization.

2. Shellfish Production: No discharge of dredged or fill material may occur in areas of concentrated shellfish production, unless the discharge is directly related to a shellfish harvesting activity authorized by NWP 4.

3. Suitable Material: No discharge of dredged or fill material may consist of unsuitable material (e.g., trash, debris, car bodies, asphalt, etc.) and material discharged must be free from toxic pollutants in toxic amounts (see Section 307 of the Clean Water Act).

4. Mitigation: Discharges of dredged or fill material into waters of the U.S. must be minimized or avoided to the maximum extent practicable at the project site (i.e., on-site), unless the District Engineer approves a compensation plan that the District Engineer determines is more beneficial to the environment than on-site minimization or avoidance measures.

5. Spawning Areas: Discharges in spawning areas during spawning seasons must be avoided to the maximum extent practicable.

6. Obstruction of High Flows: To the maximum extent practicable, discharges must not permanently restrict or impede the passage of normal or expected high flows or cause the relocation of the water (unless the primary purpose of the fill is to impound waters).

7. Adverse Effects From Impoundments: If the discharge creates an impoundment of water, adverse effects on the aquatic system caused by the accelerated passage of water and/or the restriction of its flow shall be minimized to the maximum extent practicable.

8. Waterfowl Breeding Areas: Discharges into breeding areas for migratory waterfowl must be avoided to the maximum extent practicable.

9. Removal of Temporary Fills: Any temporary fills must be removed in their entirety and the affected areas returned to their preexisting elevation.

## **APPENDIX D**

### **Correspondence**



**DEPARTMENT OF THE ARMY**  
FORT WORTH DISTRICT, CORPS OF ENGINEERS  
P. O. BOX 17300  
FORT WORTH, TEXAS 76102-0300

January 8, 1998

Mr. Jim McGinnis  
Arizona Department of Agriculture  
1688 West Adams  
Phoenix, Arizona 85007

Re: List of Plants Required To Be Transplanted Near Douglas, Arizona

Dear Mr. McGinnis,

The U.S. Army Corps of Engineers, Fort Worth District, has been contracted by Joint Task Force Six (JTF-6) to conduct an Environmental Assessment for a proposed project in Douglas, Arizona. The U.S. Army Corps of Engineers requests a current list of plants required to be transplanted under the Arizona Native Plant Law near Douglas in Cochise County Arizona.

The proposed project involves Joint Task Force Six (JTF-6) installing light poles and lights along five miles of the United States/Mexico International Border in Douglas for the United States Border Patrol. This is a supplemental project to the August 1997 JTF-6 project for installing a fence along the border at the Douglas port-of-entry.

Thank you for your assistance. If you should have any questions please call me at (817) 978-6382.

Sincerely,

A handwritten signature in black ink, reading "Linda L. Ashe", is written over the typed name.

Linda L. Ashe  
Environmental Resource Specialist





DEPARTMENT OF THE ARMY  
FORT WORTH DISTRICT, CORPS OF ENGINEERS  
P. O. BOX 17300  
FORT WORTH, TEXAS 76102-0300

December 15, 1997

Ms. Ruth Gregory  
Arizona Game and Fish Department  
Education Division  
2221 W. Greenway Road  
Phoenix, Arizona 85023-4312

Re: State List of Endangered, Threatened, Proposed, Candidate Species,  
Species of Special Concern, for Proposed JTF-6 Light Pole Project in Douglas,  
Arizona

Dear Ms. Gregory,

The U.S. Army Corps of Engineers, Fort Worth District, has been contracted by Joint Task Force Six (JTF-6) to conduct an Environmental Assessment for a proposed project in Douglas, Arizona. The U.S. Army Corps of Engineers requests a current list of state endangered, threatened, proposed, and candidate species, and species of special concern for Cochise County in Arizona.

The proposed project involves Joint Task Force Six (JTF-6) installing light poles and lights along five miles of the United States/Mexico International Border for the United States Border Patrol. This is a supplemental project to the August 1997 JTF-6 project for installing a fence along the border at the Douglas port-of-entry.

Thank you for your assistance. If you should have any questions or would like a site visit, please call me at (817) 978-6382.

Sincerely,

A handwritten signature in cursive script, reading "Linda L. Ashe", is written over the typed name.

Linda L. Ashe  
Environmental Resource Specialist



DEPARTMENT OF THE ARMY  
FORT WORTH DISTRICT, CORPS OF ENGINEERS  
P. O. BOX 17300  
FORT WORTH, TEXAS 76102-0300

January 5, 1998

Mr. Sam F. Spiller  
U.S. Fish and Wildlife Service  
Arizona Ecological Services Field Office  
2321 W. Royal Palm Road, Suite 103  
Phoenix, AZ 85021-4951

Re: Federal List of Endangered, Threatened, Proposed, Candidate  
Species, Species of Special Concern, for Proposed JTF-6 Light Pole  
Project in Douglas, Arizona

Dear Mr. Spiller,

The U.S. Army Corps of Engineers, Fort Worth District, has been contracted by Joint Task Force Six (JTF-6) to conduct an Environmental Assessment for a proposed project in Douglas, Arizona. The U.S. Army Corps of Engineers requests a current list of Federal endangered, threatened, proposed, and candidate species, and species of special concern for Cochise County in Arizona.

The proposed project involves Joint Task Force Six (JTF-6) installing light poles and lights along five miles of the United States/Mexico International Border for the United States Border Patrol. This is a supplemental project to the August 1997 JTF-6 project for installing a fence along the border at the Douglas port-of-entry.

Thank you for your assistance. If you should have any questions or would like a site visit, please call me at (817) 978-6382.

Sincerely,

A handwritten signature in cursive script, reading "Linda L. Ashe", is written over the typed name.

Linda L. Ashe  
Environmental Resource Specialist

THE STATE



OF ARIZONA

**GAME & FISH DEPARTMENT**

2221 West Greenway Road, Phoenix, Arizona 85023-4399 (602) 942-3000

Governor  
Jane Dee HullCommissioners  
Chairman, Michael M. Golightly, Flagstaff  
Herb Guenther, Tucson  
M. Jean Hassell, Scottsdale  
Dennis D. Mennig, AlpineDirector  
Duane L. ShraufDeputy Director  
Thomas W. Spalding

January 30, 1998

Ms. Linda L. Ashe  
U.S. Department of the Army  
Fort Worth District, Corps of Engineers  
P.O. Box 17300  
Fort Worth, Texas 76102-0300

Re: Special Status Species; JTF-6 Light Pole Project, Douglas,  
Arizona

Dear Ms. Ashe:

The Arizona Game and Fish Department (Department) has reviewed your letter, dated December 15, 1997, regarding special status species in the above-referenced area, and the following information is provided.

The Department's Heritage Data Management System has been accessed and current records do not indicate the presence of any Endangered, Threatened or other special status species in the project vicinity. However, a list of special status species documented in Cochise County has been provided for your information.

At this time, the Department's comments are limited to the special status species information provided above. This correspondence does not represent the Department's evaluation of impacts to wildlife or wildlife habitat associated with activities occurring in the subject area. Please contact Ms. Joan Scott from our Tucson Office, at (520) 628-5376, ext 133, if this type of evaluation applies to your project.

Thank you for the opportunity to provide this information. If you have any questions regarding this letter, please contact me at (602) 789-3606.

Sincerely,

A handwritten signature in cursive script, appearing to read "Nancy Olson".

Nancy Olson  
Project Evaluation Specialist  
Habitat Branch

NLO:no

Enclosure

cc: Joan Scott, Habitat Program Manager, Region V, Tucson

AGFD# 1-12-98 (03)

An Equal Opportunity Reasonable Accommodations Agency

Page No. 1

## ARIZONA GAME AND FISH DEPARTMENT - HERITAGE DATA MANAGEMENT SYSTEM

01/30/98

## SPECIAL STATUS SPECIES IN ARIZONA

AGFD# 1-12-98(03)

## DOCUMENTED IN COCHISE COUNTY

| COMMON NAME                   | NAME                                 | ESA | WSCA | USFS | NPL |
|-------------------------------|--------------------------------------|-----|------|------|-----|
| ALLEN'S BIG-EARED BAT         | IDIONYCTERIS PHYLLOTIS               | SC  |      |      |     |
| AMERICAN AVOCET               | RECURVIROSTRA AMERICANA              |     |      | \$   |     |
| AMERICAN PEREGRINE FALCON     | FALCO PEREGRINUS ANATUM              | LE  | WC   | \$   |     |
| ARAVAIPA SAGE                 | SALVIA AMISSA                        | SC  |      |      |     |
| ARIZONA CAVE AMPHIPOD         | STYGOBROMUS ARIZONENSIS              | SC  |      | \$   |     |
| ARIZONA NECKLACE              | SOPHORA ARIZONICA                    |     |      | \$   |     |
| ARIZONA RIDGENOSE RATTLESNAKE | CROTALUS WILLARDI WILLARDI           |     | WC   | \$   |     |
| ARIZONA SHREW                 | SOREX ARIZONAE                       | SC  | WC   | \$   |     |
| BAIRD'S SPARROW               | AMMODRAMUS BAIRDI                    | SC  | WC   | \$   |     |
| BARTRAM STONECROP             | GRAPTOPETALUM BARTRAMII              | SC  |      | \$   | SR  |
| BEARDLESS CHINCH WEED         | PECTIS IMBERBIS                      | SC  |      | \$   |     |
| BEAUTIFUL SHINER              | CYPRINELLA FORMOSA                   | LT  |      |      |     |
| BELTED KINGFISHER             | CERYLE ALCYON                        |     | WC   | \$   |     |
| BERYLLINE HUMMINGBIRD         | AMAZILIA BERYLLINA                   |     |      | \$   |     |
| BLACK-BELLIED WHISTLING-DUCK  | DENDROCYGNA AUTUMNALIS               |     | WC   | \$   |     |
| BLACK-NECKED STILT            | HIMANTOPUS MEXICANUS                 |     |      | \$   |     |
| BLACK-TAILED PRAIRIE DOG      | CYNOMYS LUDOVICIANUS                 |     | WC   |      |     |
| BLUE-THROATED HUMMINGBIRD     | LAMPORNIS CLEMENCIAE                 |     |      | \$   |     |
| BLUMER'S DOCK                 | RUMEX ORTHONEURUS                    | C   |      | \$   | HS  |
| BUFF-COLLARED NIGHTJAR        | CAPRIMULGUS RIDGWAYI                 |     |      | \$   |     |
| BUNCH GRASS LIZARD            | SCeloporus SCALARIS                  |     |      | \$   |     |
| BUTTON CACTUS                 | EPITHELANTHA MICROMERIS              |     |      |      | SR  |
| CALIFORNIA LEAF-NOSED BAT     | MACROTUS CALIFORNICUS                | SC  | WC   | \$   |     |
| CATALINA BEARDTONGUE          | PENSTEMON DISCOLOR                   |     |      | \$   | HS  |
| CAVE MYOTIS                   | MYOTIS VELIFER                       | SC  |      |      |     |
| CHIRICAHUA FLEABANE           | ERIGERON KUSCHEI                     | SC  |      | \$   | SR  |
| CHIRICAHUA FOX SQUIRREL       | SCIURUS MAYARITENSIS CHIRICAHUAE     | SC  |      | \$   |     |
| CHIRICAHUA LEOPARD FROG       | RANA CHIRICAHUENSIS                  | C   | WC   | \$   |     |
| CHIRICAHUA MUDWORT            | LIMOSELLA PUBIFLORA                  | SC  |      | \$   |     |
| CHIRICAHUA ROCK DAISY         | PERITYLE COCHISENSIS                 |     |      | \$   | SR  |
| CHIRICAHUA ROCK FLOWER        | APACHERIA CHIRICAHUENSIS             |     |      |      | SR  |
| COB CORYCACTUS                | CORYPHANTHA STROBILIFORMIS           |     |      |      | SR  |
| COCHISE PINCUSHION CACTUS     | CORYPHANTHA ROBBINSORUM              | LT  |      | \$   | HS  |
| COMMON BLACK-HAWK             | BUTEOGALLUS ANTHRACINUS              |     | WC   | \$   |     |
| COPPERMINE MILK-VETCH         | ASTRAGALUS COBRENSIS VAR MAGUIREI    | SC  |      | \$   | SR  |
| CRESTED CORAL ROOT            | HEXALECTRIS SPICATA                  |     |      |      | SR  |
| DESERT MASSASAUGA             | SISTRURUS CATENATUS EDWARDSI         |     | WC   | \$   |     |
| DESERT SUCKER                 | CATOSTOMUS CLARKI                    | SC  |      |      |     |
| EHRENBERG ADDERS MOUTH        | MALAXIS EHRENBERGII                  |     |      |      | SR  |
| ELEGANT TROGON                | TROGON ELEGANS                       |     | WC   | \$   |     |
| FALLEN LADIES'-TRESSES        | SPIRANTHES PARASITICA                |     |      |      | SR  |
| FRINGED MYOTIS                | MYOTIS THYSANODES                    | SC  |      |      |     |
| GIANT SPOTTED WHIPTAIL        | CNEMIDOPHORUS BURTI STICTOGRAMMUS    | SC  |      | \$   |     |
| GILA CHUB                     | GILA INTERMEDIA                      | C   | WC   | \$   |     |
| GILA MONSTER                  | HELODERMA SUSPECTUM                  |     |      | \$   |     |
| GOODING ASH                   | FRAXINUS GOODINGII                   |     |      | \$   |     |
| GREATER WESTERN MASTIFF BAT   | EUMOPS PEROTTI CALIFORNICUS          | SC  |      | \$   |     |
| GREEN DEATH CAMAS             | ZIGADENUS VIRESCENS                  |     |      |      | SR  |
| GREEN RAT SNAKE               | SENTICOLIS TRIASPIS INTERMEDIA       |     |      | \$   |     |
| HINCKLEY'S LADDER             | POLEMONIUM PAUCIFLORUM SSP HINCKLEYI | SC  |      | \$   |     |
| HUACHUCA GOLDEN ASTER         | HETEROTHECA RUTTERI                  | SC  |      |      |     |
| HUACHUCA GROUNDSEL            | SENECIO HUACHUCANUS                  |     |      | \$   | HS  |
| HUACHUCA MILK-VETCH           | ASTRAGALUS HYPOXYLUS                 | SC  |      | \$   | SR  |
| HUACHUCA SPRINGSNAIL          | PYRGULOPSIS THOMPSONI                | C   |      |      |     |

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ARIZONA GAME AND FISH DEPARTMENT - HERITAGE DATA MANAGEMENT SYSTEM  
SPECIAL STATUS SPECIES IN ARIZONA  
DOCUMENTED IN COCHISE COUNTY

| COMMON NAME                      | NAME   | ESA | USCA | USFS | NPL |
|----------------------------------|--|-----|------|------|-----|
| HUACHUCA WATER UMBEL             | LILAEOPSIS SCHAFFNERIANA VAR RECURVA         | LE  |      | S    | HS  |
| JAGUAR                           | FELIS ONCA                                   | LE  | WC   | S    |     |
| JAGUARUNDI                       | FELIS YAGOUAROUNDI TOLTECA                   | LE  |      | S    |     |
| LEAFY LOBELIA                    | LOBELIA FENESTRALIS                          |     |      |      | SR  |
| LEMMON FLEABANE                  | ERIGERON LEMMONII                            | C   |      | S    | HS  |
| LEMMON GLOBE BERRY               | MARGARANTHUS LEMMONII                        | SC  |      | S    |     |
| LEMMON LILY                      | LILIUM PARRYI                                | SC  |      | S    | SR  |
| LEMMON'S ASTER                   | ASTER POTOSINUS                              |     |      | S    |     |
| LESSER LONG-NOSED BAT            | LEPTONYCTERIS CURASOAE YERBABUENAE           | LE  | WC   | S    |     |
| LIMESTONE ARIZONA ROSEWOOD       | VAUQUELINIA CALIFORNICA SSP PAUCIFLORA       | SC  |      | S    | SR  |
| LOACH MINNOW                     | TIAROGA COBITIS                              | LT  | WC   | S    |     |
| LONGFIN DACE                     | AGOSIA CHRYSOGASTER                          | SC  |      |      |     |
| LOWLAND LEOPARD FROG             | RANA YAVAPAIENSIS                            | SC  | WC   | S    |     |
| LUCIFER HUMMINGBIRD              | CALOTHORAX LUCIFER                           |     |      | S    |     |
| MADREAN ADDERS MOUTH             | MALAXIS CORYMBOSA                            |     |      |      | SR  |
| MARICOPA TIGER BEETLE            | CICINDELA OREGONA MARICOPA                   | SC  |      |      |     |
| MEXICAN FREE-TAILED BAT          | TADARIDA BRASILIENSIS                        |     |      | S    |     |
| MEXICAN GARTER SNAKE             | THAMNOPHIS EQUES MEGALOPS                    | SC  | WC   | S    |     |
| MEXICAN LONG-TONGUED BAT         | CHOERONYCTERIS MEXICANA                      | SC  | WC   | S    |     |
| MEXICAN SPOTTED OWL              | STRIX OCCIDENTALIS LUCIDA                    | LT  | WC   | S    |     |
| MEXICAN STONEROLLER              | CAMPOSTOMA ORNATUM                           | SC  |      |      |     |
| MICHOACAN LADIES'-TRESSES        | SPIRANTHES MICHUACANA                        |     |      |      | SR  |
| MISSISSIPPI KITE                 | ICTINIA MISSISSIPPIENSIS                     |     | WC   | S    |     |
| MOUNTAIN SKINK                   | EUMECES TETRAGRAMIS                          |     |      | S    |     |
| NEEDLE-SPINED PINEAPPLE CACTUS   | ECHINOMASTUS ERECTOCENTRUS VAR ERECTOCENTRUS | SC  |      | S    | SR  |
| NEW MEXICO RAINBOW CACTUS        | ECHINOCEREUS PECTINATUS VAR NEOMEXICANUS     |     |      |      | SR  |
| NORTHERN APLOMADO FALCON         | FALCO FENORALIS SEPTENTRIONALIS              | LE  | WC   | S    |     |
| NORTHERN BEARLESS-TYRANNULET     | CAMPTOSTOMA IMBERBE                          |     |      | S    |     |
| NORTHERN BUFF-BREADED FLYCATCHER | EMPIDONAX FULVIFRONS PYGMAEUS                | SC  | WC   | S    |     |
| NORTHERN GOSHAWK                 | ACCIPITER GENTILIS                           | SC  | WC   | S    |     |
| NORTHERN GRAY HAWK               | BUTEO NITIDUS MAXIMUS                        | SC  | WC   | S    |     |
| PALE TOWNSEND'S BIG-EARED BAT    | PLECOTUS TOWNSENDII PALLESCENS               | SC  |      |      |     |
| PINALENO HEDGEHOG CACTUS         | ECHINOCEREUS LEDINGII                        |     |      | S    | SR  |
| PLAINS LEOPARD FROG              | RANA BLAIRI                                  |     | WC   | S    |     |
| PLAYA SPIDER PLANT               | CLEOME MULTICAULIS                           | SC  |      |      | SR  |
| PLUMMER ONION                    | ALLIUM PLUMMERAE                             |     |      |      | SR  |
| PRINGLE HAWKWEED                 | HIERACIUM PRINGLEI                           | SC  |      |      |     |
| RAMSEY CANYON LEOPARD FROG       | RANA SUBAGUAVOCALIS                          | SC  |      |      |     |
| REDFLOWER ONION                  | ALLIUM RHIZOMATUM                            |     |      |      | SR  |
| ROUNDTAIL CHUB                   | GILA ROBUSTA                                 | SC  | WC   | S    |     |
| SAITA                            | AMOREUXIA GONZALEZII                         | SC  |      | S    | SR  |
| SAN BERNARDINO SPRINGSNAIL       | PYRGULOPSIS BERNARDINA                       | SC  |      | S    | SR  |
| SAN CARLOS WILD-BUCKWHEAT        | ERIOGONUM CAPILLARE                          |     |      |      | SR  |
| SLENDER ADDERS MOUTH             | MALAXIS TENUIS                               |     |      |      | SR  |
| SLENDER NEEDLE CORYCACTUS        | CORYPHANTHA SCHEERI VAR VALIDA               |     |      |      | SR  |
| SONORA SUCKER                    | CATOSTOMUS INSIGNIS                          | SC  |      |      |     |
| SONORAN DESERT TORTOISE          | GOPHERUS AGASSIZII (SONORAN POPULATION)      | SC  | WC   | S    |     |
| SONORAN TIGER SALAMANDER         | AMBYSTOMA TIGRINUM STEBBINSI                 | LE  | WC   | S    |     |
| SOUTHWESTERN WILLOW FLYCATCHER   | EMPIDONAX TRAILLII EXTIMUS                   | LE  | WC   |      |     |
| SPECKLED DACE                    | RHINICHTHYS OSCULUS                          | SC  |      | S    |     |
| SPRAGUE'S PIPIT                  | ANTHUS SPRAGUEII                             |     | WC   | S    |     |
| STANDLEY WHITLOW-GRASS           | DRABA STANDLEYI                              | SC  |      | S    |     |
| TEPIC FLAME FLOWER               | TALINUM MARGINATUM                           | SC  |      | S    | SR  |
| TEXAS HORNED LIZARD              | PHRYNOSOMA CORNUTUM                          | SC  |      |      |     |

FROM

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ARIZONA GAME AND FISH DEPARTMENT - HERITAGE DATA MANAGEMENT SYSTEM  
SPECIAL STATUS SPECIES IN ARIZONA  
DOCUMENTED IN COCHISE COUNTY

| COMMON NAME                  | NAME                                  | ESA | USCA | USFS | NPL |
|------------------------------|---------------------------------------|-----|------|------|-----|
| TEXAS PURPLE SPIKE           | HEXALECTRIS WARNOCKII                 | SC  |      |      | HS  |
| TEXAS RAINBOW CACTUS         | ECHINOCEBUS PECTINATUS VAR PECTINATUS |     |      |      | SR  |
| THICK-BILLED KINGBIRD        | TYRANNUS CRASSIROSTRIS                |     | WC   | S    |     |
| THREE-NERVED SCURF-PEA       | PEDIOMELUM PENTAPHYLLUM               | SC  |      | S    |     |
| THURBER BOG ORCHID           | HABENARIA LIMOSA                      |     |      |      | SR  |
| TROPICAL KINGBIRD            | TYRANNUS MELANCHOLICUS                |     | WC   | S    |     |
| VARIED FISHHOOK CACTUS       | MAMMILLARIA VIRIDIFLORA               |     |      |      | SR  |
| VIOLET-CROWNED HUMMINGBIRD   | AMAZILIA VIOUCEPS                     |     | WC   | S    |     |
| WESTERN BARKING FROG         | ELEUTHEROACTYLUS AUGUSTI CACTORUM     |     | WC   | S    |     |
| WESTERN RED BAT              | LASIURUS BLOSSEVILLII                 |     | WC   | S    |     |
| WESTERN YELLOW-BILLED CUCKOO | COCCYZUS AMERICANUS OCCIDENTALIS      |     | WC   | S    |     |
| WHITE-TAILED KITE            | ELANUS CAERULEUS                      |     |      | S    |     |
| WIGGINS MILKWEED VINE        | CYNANCHUM WIGGINSII                   | SC  |      | S    |     |
| WILCOX FISHHOOK CACTUS       | MAMMILLARIA WRIGHTII VAR WILCOXII     |     |      |      | SR  |
| WISLIZENT GENTIAN            | GENTIANELLA WISLIZENI                 | SC  |      |      | SR  |
| WOODLAND SPURGE              | EUPHORBIA PLUMMERAE                   | SC  |      | S    | SR  |
| YAQUI CHUB                   | GILA PURPUREA                         | LE  | WC   | S    |     |
| YAQUI TOPMINNOW              | POECILIOPSIS OCCIDENTALIS SONORIENSIS | LE  | WC   | S    |     |
| YELLOW-NOSED COTTON RAT      | SIGMODON OCHROGNATHUS                 | SC  |      |      |     |
| ZONE-TAILED HAWK             | BUTEO ALBONOTATUS                     |     |      | S    |     |

### STATUS DEFINITIONS

- LE - Listed Endangered.** Species identified by the U.S. Fish and Wildlife Service (USFWS) under the Endangered Species Act (ESA) as being in imminent jeopardy of extinction.
- LT - Listed Threatened.** Species identified by USFWS under ESA as being in imminent jeopardy of becoming Endangered.
- C - Candidate.** Species for which USFWS has sufficient information on biological vulnerability and threats to support proposals to list as Endangered or Threatened under ESA. However, proposed rules have not yet been issued because such actions are precluded at present by other listing activity.
- SC - Species of Concern.** The terms "Species of Concern" or "Species at Risk" should be considered as terms-of-art that describe the entire realm of taxa whose conservation status may be of concern to the U.S. Fish and Wildlife Service, but neither term has official status. A 1994 Memorandum of Understanding between Federal land and wildlife management agencies calls for cooperation in the conservation of these species in an effort to reduce, mitigate, and possibly eliminate the need for future listing of these species under the Endangered Species Act.
- WC - Wildlife of Special Concern in Arizona.** Species whose occurrence in Arizona is or may be in jeopardy, or with known or perceived threats or population declines, as described by the Department's listing of Wildlife of Special Concern in Arizona (WSCA, in prep.). Species included in WSCA are currently the same as those in Threatened Native Wildlife in Arizona (1988).
- S - Sensitive.** Species classified as "sensitive" by the Regional Forester when occurring on lands managed by the U.S.D.A. Forest Service.
- HS - Highly Safeguarded.** Those Arizona native plants whose prospects for survival in this state are in jeopardy or are in danger of extinction, or are likely to become so in the foreseeable future, as described by the Arizona Native Plant Law (1993).
- SR - Salvage Restricted.** Those Arizona native plants not included in the Highly Safeguarded Category, but that have a high potential for theft or vandalism, as described by the Arizona Native Plant Law (1993).

**United States Department of the Interior****Fish and Wildlife Service****Arizona Ecological Services Field Office**

2321 W. Royal Palm Road, Suite 103

Phoenix, Arizona 85021-4951

(602) 640-2720 Fax (602) 640-2730



In Reply Refer To:

AESO/SE

2-21-97-I-269

January 15, 1998

Ms. Linda L. Ashe  
Environmental Resource Specialist  
Department of the Army  
Corps of Engineers  
P.O. Box 17300  
Fort Worth, Texas 76102-0300

RE: Proposed JTF-6 Light Pole Project in Douglas, Arizona

Dear Ms. Ashe:

This letter responds to your January 5, 1998, request for an inventory of threatened or endangered species, or those that are proposed to be listed as such under the Endangered Species Act of 1973, as amended (Act), which may potentially occur in your project area (Cochise County). The enclosed list may include candidate species as well. We hope the enclosed county list of species will be helpful. In future communications regarding this project, please refer to consultation number 2-21-97-I-269.

The enclosed list of the endangered, threatened, proposed, and candidate species includes all those potentially occurring anywhere in the county, or counties, where your project occurs. Please note that your project area may not necessarily include all or any of these species. The information provided includes general descriptions, habitat requirements, and other information for each species on the list. Also on the enclosed list is the Code of Federal Regulations (CFR) citation for each listed or proposed species. Additional information can be found in the CFR and is available at most public libraries. This information should assist you in determining which species may or may not occur within your project area. Site-specific surveys could also be helpful and may be needed to verify the presence or absence of a species or its habitat as required for the evaluation of proposed project-related impacts.

Endangered and threatened species are protected by Federal law and must be considered prior to project development. If the action agency determines that listed species or critical habitat may be adversely affected by a federally funded, permitted, or authorized activity, the action agency must request formal consultation with the Service. If the action agency determines that the planned action may jeopardize a proposed species or destroy or adversely modify proposed critical habitat, the action agency must enter into a section 7 conference with the Service. Candidate species are those which are being considered for addition to the list of threatened or



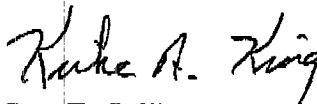
endangered species. Candidate species are those for which there is sufficient information to support a proposal for listing. Although candidate species have no legal protection under the Act, we recommend that they be considered in the planning process in the event that they become listed or proposed for listing prior to project completion.

If any proposed action occurs in or near areas with trees and shrubs growing along watercourses, known as riparian habitat, the Service recommends the protection of these areas. Riparian areas are critical to biological community diversity and provide linear corridors important to migratory species. In addition, if the project will result in the deposition of dredged or fill materials into waterways or excavation in waterways, we recommend you contact the Army Corps of Engineers which regulates these activities under Section 404 of the Clean Water Act.

The State of Arizona protects some plant and animal species not protected by Federal law. We recommend you contact the Arizona Game and Fish Department and the Arizona Department of Agriculture for State-listed or sensitive species in your project area.

The Service appreciates your efforts to identify and avoid impacts to listed and sensitive species in your project area. If we may be of further assistance, please contact Tom Gatz.

Sincerely,

  
for Sam F. Spiller  
Field Supervisor

Enclosure

cc: Director, Arizona Game and Fish Department, Phoenix, AZ

LISTED, PROPOSED, AND CANDIDATE SPECIES FOR THE FOLLOWING COUNTY:

COCHISE

11/20/97

LISTED TOTAL= 19

NAME: CANELO HILLS LADIES' TRESSES

*SPIRANTHES DELITESCENS*

STATUS: ENDANGERED CRITICAL HAB No RECOVERY PLAN: No CFR: 62 FR 885, 01-06-97

DESCRIPTION: SLENDER ERECT MEMBER OF THE ORCHID FAMILY (ORCHIDACEAE).

FLOWER: STALK 50 CM TALL. MAY CONTAIN 40 WHITE FLOWERS  
SPIRALLY ARRANGED ON THE FLOWERING STALK.

ELEVATION

RANGE: about 5000 FT.

COUNTIES: COCHISE, SANTA CRUZ

HABITAT: FINELY GRAINED, HIGHLY ORGANIC, SATURATED SOILS OF CIENEGAS

POTENTIAL HABITAT OCCURS IN SONORA, MEXICO, BUT NO POPULATIONS HAVE BEEN FOUND.

NAME: COCHISE PINCUSHION CACTUS

*CORYPHANTHA ROBBINSORUM*

STATUS: THREATENED CRITICAL HAB No RECOVERY PLAN: Yes CFR: 51 FR 952, 1-9-1986

DESCRIPTION: A SMALL UNBRANCHED CACTUS WITH NO CENTRAL SPINES AND 11-17

WHITE RADIAL SPINES. THE BELL-SHAPED FLOWERS ARE BORNE ON

THE ENDS OF TUBERCULES (Protrusions). FLOWERS: BELL SHAPED.

PALE YELLOW-GREEN. FRUITS: ORANGE-RED TO RED

ELEVATION

RANGE: &gt;4200 FT.

COUNTIES: COCHISE AND SONORA, MEXICO

HABITAT: SEMIDESERT GRASSLAND WITH SMALL SHRUBS, AGAVE, OTHER CACTI, AND GRAMA GRASS.

GROWS ON GRAY LIMESTONE HILLS.

NAME: HUACHUCA WATER UMBEL

*LILAEOPSIS SCHAFFNERIANA* ssp *RECURVA*

STATUS: ENDANGERED CRITICAL HAB No RECOVERY PLAN: No CFR: 62 FR 665, 01-06-97

DESCRIPTION: HERBACEOUS, SEMI-AQUATIC PERENNIAL IN THE PARSLEY FAMILY

(UMBELLIFERAE) WITH SLENDER ERECT, HOLLOW, LEAVES THAT GROW

FROM THE NODES OF CREEPING RHIZOMES. FLOWER: 3 TO 10

FLOWERED UMBELS ARISE FROM ROOT NODES.

ELEVATION

RANGE: 3500-8500 FT.

COUNTIES: PIMA, SANTA CRUZ COCHISE

HABITAT: CIENEGAS. PERENNIAL LOW GRADIENT STREAMS, WETLANDS

AND IN ADJACENT SONORA, MEXICO, WEST OF THE CONTINENTAL DIVIDE. POPULATIONS ALSO ON FORT  
HUACHUCA MILITARY RESERVATION.

## LISTED, PROPOSED, AND CANDIDATE SPECIES FOR THE FOLLOWING COUNTY:

COCHISE

11/20/97

NAME: NEW MEXICAN RIDGE-NOSED RATTLESNAKE *CROTALUS WILLARDI OBSCURUS*

STATUS: THREATENED

CRITICAL HAB Yes RECOVERY PLAN: Yes CFR: 43 FR 34479, 04-04-1978

DESCRIPTION: SMALL 12-24 INCHES, SECRETIVE GRAYISH-BROWN WITH DISTINCT  
RIDGE ON THE END OF THE SNOUT. THE DORSAL SURFACE HAS  
OBSCURE, IRREGULARLY SPACED WHITE CROSSBARS EDGED WITH  
BROWN (NOT A BOLD PATTERN).

ELEVATION

RANGE: 5600-8000 FT.

COUNTIES: COCHISE

HABITAT: PRESUMABLY CANYON BOTTOMS IN PINE-OAK & PINE-FIR COMMUNITIES WITH ALDER, MAPLE, OAK, &  
BOX ELDER

THE SUBSPECIES HAS NOT BEEN DOCUMENTED IN ARIZONA. HOWEVER, IT HAS BEEN OBSERVED NEAR THE  
ARIZONA BORDER IN THE PELONCILLO MOUNTAINS AND LIKELY OCCURS IN THE ARIZONA PORTION OF THAT  
RANGE AS WELL. ANOTHER SUBSPECIES, (*CROTALUS WILLARDI WILLARDI*), IS AN ARIZONA STATE CANDIDATE.

NAME: JAGUAR, UNITED STATES POPULATION

*PANTHERA ONCA*

STATUS: ENDANGERED

CRITICAL HAB No RECOVERY PLAN: No CFR: 62 FR 39147, 7-22-97

DESCRIPTION: MUSCULAR CAT WITH RELATIVELY SHORT, MASSIVE LIMBS AND A DEEP-  
CHESTED BODY. CINNAMON-BUFF IN COLOR WITH BLACK SPOTS.

ELEVATION

RANGE: &lt;8000 FT.

COUNTIES: COCHISE, PIMA, SANTA CRUZ

HABITAT: IN ARIZONA, RANGED WIDELY THROUGHOUT A VARIETY OF HABITATS FROM SONORAN DESERT TO  
CONIFER FORESTS

MOST RECORDS ARE FROM THE MADREAN EVERGREEN-WOODLAND, SHRUB-INVADDED SEMI-DESERT GRASSLAND,  
AND ALONG RIVERS. HISTORIC RANGE IS CONSIDERED TO HAVE EXTENDED BEYOND THE COUNTIES LISTED  
ABOVE. REPORTS OF INDIVIDUALS IN THE SOUTHERN PART OF THE STATE CONTINUE TO BE RECEIVED. THE  
MOST RECENT RECORDS OF A JAGUAR IN THE U.S. ARE FROM THE NEW MEXICO/ARIZONA BORDER AREA AND IN  
SOUTHCENTRAL ARIZONA. BOTH IN 1996, AND CONFIRMED THROUGH PHOTOGRAPHS. UNCONFIRMED SIGHTINGS  
AND TRACKS CONTINUE TO BE REPORTED.

NAME: JAGUARUNDI

*FELIS YAGOUAROUNDI TOLTECA*

STATUS: ENDANGERED

CRITICAL HAB No RECOVERY PLAN: No CFR: 41 FR 24084; 06-14-76

DESCRIPTION: SMALL CAT WITH SHORT LEGS; SLENDER, ELONGATE BODY; AND LONG  
TAIL. HEAD SMALL & FLATTENED WITH SHORT ROUNDED EARS.  
REDDISH-YELLOW OR BLACKISH TO BROWN-GRAY IN COLOR AND  
WITHOUT SPOTS.

ELEVATION

RANGE: 3500-6000 FT.

COUNTIES: SANTA CRUZ, PIMA, COCHISE

HABITAT: CAN BE FOUND IN A VARIETY OF HABITATS (SEE BELOW)

SEMI-ARID THORNY FORESTS. DECIDUOUS FORESTS. HUMID PRE-MONTANE FORESTS. UPLAND DRY SAVANNAHS.  
SWAMPY GRASSLANDS. RIPARIAN AREAS, AND DENSE BRUSH. UNCONFIRMED REPORTS OF INDIVIDUALS IN THE  
SOUTHERN PART OF THE STATE CONTINUE TO BE RECEIVED. NO SPECIMENS HAVE BEEN COLLECTED IN  
ARIZONA.

## LISTED, PROPOSED, AND CANDIDATE SPECIES FOR THE FOLLOWING COUNTY:

COCHISE

11/20/97

NAME: LESSER LONG-NOSED BAT

*LEPTONYCTERIS CURASOAE YERBABUENAE*

STATUS: ENDANGERED

CRITICAL HAB No RECOVERY PLAN: Yes CFR: 53 FR 38456, 09-30-88

DESCRIPTION: ELONGATED MUZZLE, SMALL LEAF NOSE, AND LONG TONGUE.  
YELLOWISH BROWN OR GRAY ABOVE AND CINNAMON BROWN BELOW.  
TAIL MINUTE AND APPEARS TO BE LACKING. EASILY DISTURBED.

ELEVATION  
RANGE: <6000 FT.

COUNTIES: COCHISE, PIMA, SANTA CRUZ, GRAHAM, PINAL, MARICOPA

HABITAT: DESERT SCRUB HABITAT WITH AGAVE AND COLUMNAR CACTI PRESENT AS FOOD PLANTS

DAY ROOSTS IN CAVES AND ABANDONED TUNNELS. FORAGES AT NIGHT ON NECTAR, POLLEN, AND FRUIT OF PANICULATE AGAVES AND COLUMNAR CACTI. THIS SPECIES IS MIGRATORY AND IS PRESENT IN ARIZONA, USUALLY FROM APRIL TO SEPTEMBER AND SOUTH OF THE BORDER THE REMAINDER OF THE YEAR.

NAME: MEXICAN GRAY WOLF

*CANIS LUPUS BAILEYI*

STATUS: ENDANGERED

CRITICAL HAB No RECOVERY PLAN: Yes CFR: 32 FR 4001, 03-11-87; 43 FR 1912, 03-09-78

DESCRIPTION: LARGE DOG-LIKE CARNIVORE WITH VARYING COLOR, BUT USUALLY A SHADE OF GRAY. DISTINCT WHITE LIP LINE AROUND MOUTH. WEIGH 60-90 POUNDS.

ELEVATION  
RANGE: 4,000-12,000 FT.

COUNTIES: COCHISE, PIMA, SANTA CRUZ

HABITAT: CHAPPARAL, WOODLAND, AND FORESTED AREAS. MAY CROSS DESERT AREAS.

HISTORIC RANGE IS CONSIDERED TO BE LARGER THAN THE COUNTIES LISTED ABOVE. UNCONFIRMED REPORTS OF INDIVIDUALS IN THE SOUTHERN PART OF THE STATE CONTINUE TO BE RECEIVED. INDIVIDUALS MAY STILL PERSIST IN MEXICO.

NAME: OCELOT

*FELIS PARDALIS*

STATUS: ENDANGERED

CRITICAL HAB No RECOVERY PLAN: Yes CFR: 47 FR 31670; 07-21-82

DESCRIPTION: MEDIUM-SIZED SPOTTED CAT WHOSE TAIL IS ABOUT 1/2 THE LENGTH OF HEAD AND BODY. YELLOWISH WITH BLACK STREAKS AND STRIPES RUNNING FROM FRONT TO BACK. TAIL IS SPOTTED AND FACE IS LESS HEAVILY STREAKED THAN THE BACK AND SIDES.

ELEVATION  
RANGE: <8000 FT.

COUNTIES: SANTA CRUZ, PIMA, COCHISE

HABITAT: HUMID TROPICAL &amp; SUB-TROPICAL FORESTS, SAVANNAHS, AND SEMI-ARID THORNSCRUB.

MAY PERSIST IN PARTLY-CLEARED FORESTS, SECOND-GROWTH WOODLAND, AND ABANDONED CULTIVATION REVERTED TO BRUSH. UNIVERSAL COMPONENT IS PRESENCE OF DENSE COVER. UNCONFIRMED REPORTS OF INDIVIDUALS IN THE SOUTHERN PART OF THE STATE CONTINUE TO BE RECEIVED.

LISTED, FIRST USED, AND CANDIDATE OF COIES FOR THE FOLLOWING COUNTY:

COCHISE

11/20/97

NAME: BEAUTIFUL SHINER

*CYPRINELLA FORMOSA*

STATUS: THREATENED

CRITICAL HAB Yes RECOVERY PLAN: Yes CFR: 49 FR 34490, 8-31-1984

DESCRIPTION: SMALL (2.5 INCHES) SHINY MINNOW AND VERY SIMILAR TO RED SHINER.  
MALES COLORFUL DURING BREEDING (YELLOW-ORANGE OR ORANGE  
ON CAUDAL AND LOWER FINS AND BLuish BODY,

ELEVATION

RANGE: &lt;4500 FT.

COUNTIES: COCHISE

HABITAT: SMALL TO MEDIUM SIZED STREAMS AND PONDS WITH SAND, GRAVEL, AND ROCK BOTTOMS.

VIRTUALLY EXTIRPATED IN THE UNITED STATES, WITH THE EXCEPTION OF A FEW ISOLATED POPULATIONS ON  
NATIONAL WILDLIFE REFUGES AND IN MEXICO. SAME CRITICAL HABITAT AS YAQUI CHUB AND CATFISH (SEE 49 FR  
34490, 08-31-1984).

NAME: YAQUI CATFISH

*ICTALURUS PRICEI*

STATUS: THREATENED

CRITICAL HAB Yes RECOVERY PLAN: Yes CFR: 49 FR 34490, 08-31-1984

DESCRIPTION: SIMILAR TO CHANNEL CATFISH (*Ictalurus punctatus*) EXCEPT ANAL FIN  
BASE IS SHORTER AND THE DISTAL MARGIN OF THE ANAL FIN IS  
BROADLY ROUNDED WITH 23-25 SOFT RAYS, BODY USUALLY  
PROFUSELY SPECKLED.

ELEVATION

RANGE: 4000-5000 FT.

COUNTIES: COCHISE

HABITAT: MODERATE TO LARGE STREAMS WITH SLOW CURRENT OVER SAND AND ROCK BOTTOMS

CRITICAL HABITAT ALL AQUATIC HABITATS IN THE MAIN PORTION OF SAN BERNADINO NATIONAL WILDLIFE  
REFUGE

NAME: YAQUI CHUB

*GILA PURPUREA*

STATUS: ENDANGERED

CRITICAL HAB Yes RECOVERY PLAN: Yes CFR: 49 FR 34490, 08-31-1984

DESCRIPTION: MEDIUM SIZED MINNOW (<6 INCHES) DARK COLORED, LIGHTER BELOW.  
DARK TRIANGULAR CAUDAL SPOT

ELEVATION

RANGE: 4000-6000 FT.

COUNTIES: COCHISE (AZ), MEXICO

HABITAT: DEEP POOLS OF SMALL STREAMS, POOLS. OR PONDS NEAR UNDERCUT BANKS.

CRITICAL HABITAT INCLUDES ALL AQUATIC HABITATS OF THE MAIN PORTION SAN BERNADINO NATIONAL WILDLIFE  
REFUGE.

FROM

(WED) 03. 18' 98 09:43/ST. 09:37/NO. 3561627017 P 13

LISTED, PROPOSED, AND CANDIDATE SPECIES FOR THE FOLLOWING COUNTY:

COCHISE

11/20/97

NAME: YAQUI TOPMINNOW

*POECILIOPSIS OCCIDENTALIS SONORIENSIS*

STATUS: ENDANGERED

CRITICAL HAB No RECOVERY PLAN: Yes CFR: 32 FR 4001, 03-11-1967

DESCRIPTION: SMALL (2 INCHES) TOPMINNOW GUPPY-LIKE. LIVE BEARING, LACKING  
DARK SPOTS. BREEDING MALES JET BLACK WITH YELLOW FINS.

ELEVATION

RANGE: <4500 FT.

COUNTIES: COCHISE

HABITAT: SMALL TO MODERATE SIZED STREAMS, SPRINGS, & CIENEGAS GENERALLY IN SHALLOWS

NAME: AMERICAN PEREGRINE FALCON

*FALCO PEREGRINUS ANATUM*

STATUS: ENDANGERED

CRITICAL HAB No RECOVERY PLAN: Yes CFR: 35 FR 18047, 10-13-70; 35  
FR 8495, 06-02-70

DESCRIPTION: A RECLUSIVE, CROW-SIZED FALCON SLATY BLUE ABOVE WHITISH  
BELOW WITH FINE DARK BARRING. THE HEAD IS BLACK AND APPEARS  
TO BE MASKED OR HELMETED. WINGS LONG AND POINTED. LOUD  
WAILING CALLS ARE GIVEN DURING BREEDING PERIOD.

ELEVATION

RANGE: 3500-9000 FT.

COUNTIES: MOHAVE COCONINO NAVAJO APACHE SANTA CRUZ MARICOPA COCHISE YAVAPAI GILA PINAL PIMA  
GREENLEE GRAHAM

HABITAT: CLIFFS AND STEEP TERRAIN USUALLY NEAR WATER OR WOODLANDS WITH ABUNDANT PREY

THIS IS A WIDE-RANGING MIGRATORY BIRD THAT USES A VARIETY OF HABITATS. BREEDING BIRDS ARE YEAR-  
ROUND RESIDENTS. OTHER BIRDS WINTER AND MIGRATE THROUGH ARIZONA. SPECIES IS ENDANGERED FROM  
REPRODUCTIVE FAILURE FROM PESTICIDES.

NAME: MEXICAN SPOTTED OWL

*STRIX OCCIDENTALIS LUCIDA*

STATUS: THREATENED

CRITICAL HAB Yes RECOVERY PLAN: Yes CFR: 55 FR 14678, 04-11-91

DESCRIPTION: MEDIUM SIZED WITH DARK EYES AND NO EAR TUFTS. BROWNISH AND  
HEAVILY SPOTTED WITH WHITE OR BEIGE.

ELEVATION

RANGE: 4100-9000 FT.

COUNTIES: MOHAVE, COCONINO, NAVAJO, APACHE, YAVAPAI, GRAHAM, GREENLEE, COCHISE, SANTA CRUZ, PIMA,  
PINAL, GILA, MARICOPA

HABITAT: NESTS IN CANYONS AND DENSE FORESTS WITH MULTI-LAYERED FOLIAGE STRUCTURE

GENERALLY NESTS IN OLDER FORESTS OF MIXED CONIFER OR PONDEROSA PINE/GAMBEL OAK TYPE. IN  
CANYONS, AND USE VARIETY OF HABITATS FOR FORAGING. SITES WITH COOL MICROCLIMATES APPEAR TO BE  
OF IMPORTANCE OR ARE PREFERRED.

FROM

(WED) 03. 18' 98 09:43/ST. 09:37/NO. 3561627017 P 14

LISTED, PROPOSED, AND CANDIDATE SPECIES FOR THE FOLLOWING COUNTY:

COCHISE

11/20/97

NAME: NORTHERN APLOMADO FALCON

*FALCO FEMORALIS SEPTENTRIONALIS*

STATUS: ENDANGERED

CRITICAL HAB No RECOVERY PLAN: Yes CFR: 51 FR 6686, 01-25-86

DESCRIPTION: RUFOUS UNDERPARTS, GRAY BACK, LONG BANDED TAIL, AND A  
DISTINCT BLACK AND WHITE FACIAL PATTERN. SMALLER THAN  
PEREGRINE LARGER THAN KESTREL BREEDS BETWEEN MARCH- JUNE

ELEVATION

RANGE: 3500-9000 FT.

COUNTIES: COCHISE, SANTA CRUZ

HABITAT: GRASSLAND AND SAVANNAH

SPECIES FORMERLY NESTED IN SOUTHWESTERN US. NOW OCCURS AS AN ACCIDENTAL. GOOD HABITAT HAS  
LOW GROUND COVER AND MESQUITE OR YUCCA FOR NESTING PLATFORMS. CONTINUED USE OF PESTICIDES IN  
MEXICO ENDANGERS THIS SPECIES. NO RECENT CONFIRMED REPORTS FOR ARIZONA.

NAME: SOUTHWESTERN WILLOW FLYCATCHER

*EMPIDONAX TRAILLII EXTIMUS*

STATUS: ENDANGERED

CRITICAL HAB Yes RECOVERY PLAN: No CFR: 60 FR 10684, 02-27-95

DESCRIPTION: SMALL PASSERINE (ABOUT 6") GRAYISH-GREEN BACK AND WINGS.  
WHITISH THROAT, LIGHT OLIVE-GRAY BREAST AND PALE YELLOWISH  
BELLY. TWO WINGBARS VISIBLE. EYE-RING FAINT OR ABSENT.

ELEVATION

RANGE: <8500 FT.

COUNTIES: YAVAPAI, GILA, MARICOPA, MOHAVE, COCONINO, NAVAJO, APACHE, PINAL, LA PAZ, GREENLEE, GRAHAM,  
YUMA, PIMA, COCHISE, SANTA CRUZ

HABITAT: COTTONWOOD/WILLOW & TAMARISK VEGETATION COMMUNITIES ALONG RIVERS & STREAMS

MIGRATORY RIPARIAN OBLIGATE SPECIES THAT OCCUPIES BREEDING HABITAT FROM LATE APRIL TO  
SEPTEMBER. DISTRIBUTION WITHIN ITS RANGE IS RESTRICTED TO RIPARIAN CORRIDORS. DIFFICULT TO  
DISTINGUISH FROM OTHER MEMBERS OF THE EMPIDONAX COMPLEX BY SIGHT ALONE. TRAINING SEMINAR  
REQUIRED FOR THOSE CONDUCTING FLYCATCHER SURVEYS. CRITICAL HABITAT ON PORTIONS OF THE 100-YEAR  
FLOODPLAIN ON SAN PEDRO AND VERDE RIVERS; WET BEAVER AND WEST CLEAR CREEKS, INCLUDING TAVASCI  
MARSH AND ISTER FLAT; THE COLORADO RIVER, THE LITTLE COLORADO RIVER, AND THE WEST, EAST, AND  
SOUTH FORKS OF THE LITTLE COLORADO RIVER, REFERENCE 60 CFR:62 FR 39129, 7/22/97.

NAME: WHOOPING CRANE

*GRUS AMERICANA*

STATUS: ENDANGERED

CRITICAL HAB Yes RECOVERY PLAN: Yes CFR: 32 FR 4001, 03-11-1967; 43  
FR 20938, 05-15-78

DESCRIPTION: TALLEST AMERICAN BIRD (UP TO 5 FEET) SNOWY WHITE. LONG NECK  
AND LEGS. BLACK WING TIPS, RED CROWN, AND BLACK WEDGE  
SHAPED PATCH OF FEATHERS BEHIND ITS EYE.

ELEVATION

RANGE: 4500 FT.

COUNTIES: COCHISE

HABITAT: MARSHES, PRAIRIES, RIVER BOTTOMS

BIRDS IN THE ROCKY MOUNTAIN POPULATION ARE OCCASIONAL VISITORS IN ARIZONA DURING MIGRATION.  
USUALLY NEAR WILCOX PLAYA.

FROM

(WED) 03. 18' 98 09:43/ST. 09:37/NO. 3561627017 P 15

LISTED, PROPOSED, AND CANDIDATE SPECIES FOR THE FOLLOWING COUNTY:

COCHISE

11/20/97

NAME: SONORA TIGER SALAMANDER

*AMBYSTOMA TIGRINUM STEBBINSI*

STATUS: ENDANGERED

CRITICAL HAB No RECOVERY PLAN: No CFR: 62 FR 685, 01-06-97

DESCRIPTION: 2.6 TO 4.9" SNOUT-VENT LENGTH WITH LIGHT-COLORED BANDS ON A  
DARK BACKGROUND. AQUATIC LARVAE ARE UNIFORM DARK COLOR  
WITH PLUME-LIKE GILLS AND TAIL FINS.

ELEVATION

RANGE: 4000-6300 FT.

COUNTIES: SANTA CRUZ, COCHISE

HABITAT: STOCK TANKS AND IMPOUNDED CIENEGAS IN SAN RAFAEL VALLEY, HUACHUCA MOUNTAINS

ALSO OCCURS IN THE FOOTHILLS OF THE EAST SLOPE OF THE PATAGONIA AND HUACHUCA MOUNTAINS.  
POPULATIONS ALSO ON FORT HUACHUCA.



LISTED, PROPOSED, AND CANDIDATE SPECIES FOR THE FOLLOWING COUNTY:

11/20/97

**CANDIDATE TOTAL= 6****NAME: BLUMER'S DOCK*****RUMEX ORTHONEURUS*****STATUS: CANDIDATE****CRITICAL HAB No RECOVERY PLAN: No CFR:****DESCRIPTION:** LARGE LONG-LIVED PERENNIAL PLANT IN THE BUCKWHEAT FAMILY THAT CAN REACH 1.2-2.0 METERS. LARGE BROAD, OVAL SEMI-SUCCULENT LEAVES ARE BRIGHT GREEN. CONSPICUOUS SECONDARY VEINS AT RIGHT ANGLES TO THE MIDVEIN**ELEVATION****RANGE: 6500-9000 FT.****COUNTIES: GILA, COCHISE****HABITAT:** MID TO HIGH ELEVATION SPRINGS, STREAMS, & WETLANDS WITH MOIST ORGANIC SOILS OR SHADED CANYONS**NAME: LEMMON FLEABANE*****ERIGERON LEMMONII*****STATUS: CANDIDATE****CRITICAL HAB No RECOVERY PLAN: No CFR:****DESCRIPTION:** A PROSTRATE PERENNIAL IN THE SUNFLOWER FAMILY. STEMS AND LEAVES ARE DENSELY HAIRY. FLOWERS LOOK LIKE SMALL DELICATE DAISIES, WITH WHITE TO LIGHT PURPLE OUTER PETALS AND YELLOW INNER PETALS.**ELEVATION****RANGE: 1500-6000 FT.****COUNTIES: COCHISE****HABITAT:** GROWS IN DENSE CLUMPS IN CREVICES, LEDGES, AND BOULDERS IN CANYON BOTTOMS IN PINE-OAK WOODLAND**NAME: GILA CHUB*****GILA INTERMEDIA*****STATUS: CANDIDATE****CRITICAL HAB No RECOVERY PLAN: No CFR:****DESCRIPTION:** DEEP COMPRESSED BODY, FLAT HEAD, DARK OLIVE-GRAY COLOR ABOVE, SILVER SIDES, ENDEMIC TO GILA RIVER BASIN.**ELEVATION****RANGE: 2000 - 3500 FT.****COUNTIES: SANTA CRUZ, GILA, GREENLEE, PIMA, COCHISE, GRAHAM, YAVAPAI****HABITAT:** POOLS, SPRINGS, CIENEGAS, AND STREAMS**MULTIPLE PRIVATE LANDOWNERS, INCLUDING THE NATURE CONSERVANCY, THE AUDUBON SOCIETY, AND OTHERS, ALSO FT. HUACHUCA. SPECIES ALSO FOUND IN SONORA, MEXICO.**

FROM

(WED) 03. 18' 98 09:44/ST. 09:37/NO. 3561627017 P 17

LISTED, PROPOSED, AND CANDIDATE SPECIES FOR THE FOLLOWING COUNTY:

COCHISE

11/20/97

NAME: HUACHUCA SPRINGSNAIL

*PYRGULOPSIS THOMPSONI*

STATUS: CANDIDATE

CRITICAL HAB No RECOVERY PLAN: No CFR:

DESCRIPTION: VERY SMALL (1.7-3.2mm) CONICAL SHELL IDENTIFICATION MUST BE  
VERIFIED BY CHARACTERISTICS OF REPRODUCTIVE ORGANS.

ELEVATION

RANGE: 4500-6000 FT.

COUNTIES: COCHISE, SANTA CRUZ

HABITAT: AQUATIC AREAS, SMALL SPRINGS WITH VEGETATION SLOW TO MODERATE FLOW.

INDIVIDUALS FOUND ON FIRM SUBSTANCES (ROOTS, WOOD, AND ROCKS)

NAME: MOUNTAIN PLOVER

*CHARADRIUS MONTANUS*

STATUS: CANDIDATE

CRITICAL HAB No RECOVERY PLAN: No CFR:

DESCRIPTION: WADING BIRD; COMPACTLY BUILT; IN BREEDING SEASON WITH WHITE  
FOREHEAD AND LINE OVER THE EYE; CONTRASTING WITH DARK  
CROWN; NONDESCRIPT IN WINTER. VOICE IS LOW, VARIABLE WHISTLE.

ELEVATION  
RANGE: 0

FT.

COUNTIES: YUMA, SANTA CRUZ, PIMA, COCHISE

HABITAT:

NAME: CHIRICAHUA LEOPARD FROG

*RANA CHIRICAHUENSIS*

STATUS: CANDIDATE

CRITICAL HAB No RECOVERY PLAN: No CFR: 59 FR 58996

DESCRIPTION: CREAM COLORED TUBERCLES (spots) ON A DARK BACKGROUND ON  
THE REAR OF THE THIGH, DORSOLATERAL FOLDS THAT ARE  
INTERRUPTED AND DEFLECTED MEDIANLY, AND A CALL GIVEN OUT OF  
WATER DISTINGUISH THIS SPOTTED FROG FROM OTHER LEOPRD

ELEVATION

RANGE: 3000-8300 FT.

COUNTIES: SANTA CRUZ, APACHE, GILA, PIMA, COCHISE, GREENLEE, GRAHAM, YAVAPAI, COCONINO, NAVAJO

HABITAT: STREAMS, RIVERS, BACKWATERS, PONDS, AND STOCK TANKS THAT ARE FREE FROM INTRODUCED FISH  
AND BULLFROGS

REQUIRE PERMANENT OR NEARLY PERMANENT WATER SOURCES. POPULATIONS NORTH OF THE GILA RIVER ARE  
THOUGHT TO BE CLOSELY-RELATED, BUT DISTINCT, UNDESCRIBED SPECIES.

# **APPENDIX E**

## **Public Comments**



INTERNATIONAL BOUNDARY AND WATER COMMISSION  
UNITED STATES AND MEXICO

MAR 13 1998

OFFICE OF THE COMMISSIONER  
UNITED STATES SECTION

Dan L. Wilkinson, Ph.D.  
Vice President, Environmental Division  
Geo-Marine, Inc.  
550 East Fifteenth Street  
Plano, Texas 75074

Re: Supplemental Environmental Assessment for the Proposed JTF-6 Mission to Install Light Poles in Douglas, Cochise County, Arizona (Ref. No. 1549-121)

Dear Dr. Wilkinson:

The United States Section, International Boundary and Water Commission (USIBWC) received the subject document prepared for Joint Task Force Six (JTF-6) by the U.S. Army Corps of Engineers (USCOE) on February 18, 1998. We offer the following comments for your perusal and information.

The draft Finding of No Significant Impact (FONSI) addresses the proposed action of installing approximately 5-miles of light poles and constructing an 8-foot wide graded right-of-way east and west of the Douglas, Arizona port of entry (POE), and 150 feet north of the international boundary with Mexico. The proposed action would install light poles every 400 feet for approximately two miles from Avenue A to Airport Road on the east side of the Douglas POE, and approximately three miles west of the Douglas POE. The USIBWC understands that the subject Environmental Assessment (EA) is a supplement to the August 1997 EA, for the proposed Fence and Road Construction in Douglas, Arizona, and to the 1994 Programmatic Environmental Impact Statement (PEIS) prepared for proposed Immigration and Naturalization (INS) and JTF-6 projects to facilitate Law Enforcement Agency missions which will reduce illegal drug activities along the southern border of the United States.

In the event that rights-of-entry cannot be obtained, the FONSI also pertains to the environmentally preferred alternative of light pole installation along an existing border road located 60 feet north of the border. If the proposed project is constructed within the 60 foot zone, a permit from the USIBWC will be required, and we ask that you coordinate with the Chief of General Services Division, Mr. Manuel Rubio at (915)832-4137 regarding said permit.

On page 4.4 of the subject EA, an area of cattails within the ephemeral Whitewater Draw at the international border was observed which was "apparently caused by the border road impeding flow through the channel." The USIBWC assumes that the border road referred to in this statement is the one which was the subject of the EA finalized in August of 1997, and which underwent improvements in January 1998. The USIBWC reviewed and commented on the Douglas Fence and Road Construction EA on June 26, 1997 and August 26, 1997 and expressed major concerns regarding potential adverse impacts to boundary drainage patterns.

As the widths of the observed high water mark (OHWM) of four intermittent drainage channels, including Whitewater Draw, located in the proposed project area west of the POE, were documented at approximately 4 feet, 20 feet, 15 feet, and 2 feet, the USIBWC again stresses the need for proper design of road drainage prior to construction. The subject EA states that less than one-third acre of fill would be implemented under Nationwide Permit 14, *Road Crossings*, and that the impacts to drainages would be restricted to the width of the road crossings and would only include graded dirt fords.

We request that you coordinate with Design Division Engineer James M. Robinson at (915)832-4152 to ensure that surface water drainages will not be adversely affected by this proposed project as they have been in the past. Finally, we suggest that you coordinate these proposed activities with the State Historic Preservation Officer and any local area Indian Tribes, if applicable.

Thank you for the opportunity to coordinate and comment on the proposed JTF-6 project. If you have any questions, I may be reached at (915)832-4148. Also, in the future, please address environmental documents for our review to my attention.

Sincerely,



*for* Yusuf E. Farran, P.E.  
Division Engineer  
Environmental Management Division

cc: Ms. Linda Ashe, USCOE, Fort Worth  
Fax No. (817)978-7539

RESPONSES TO COMMENTS RECEIVED ON DRAFT EA  
PROPOSED JTF-6 LIGHT POLE INSTALLATION MISSION  
DOUGLAS , ARIZONA

Comment

The United States Section, International Boundary and Water Commission (USIBWC) requests that JTF-6 coordinate with them concerning permits and design construction of water crossings along the right-of-way for the project.

Response

In 1998, the first phase of this project will take place only on the east side of the Douglas port-of-entry (POE). According to JTF-6 the USIBWC concerns are located west of the POE. JTF-6 will not start the second phase of the project west of the POE until 1999. JTF-6 will ensure design features of water crossings and permits are coordinated with USIBWC.